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Rock Products

DEVOTED TO THE PRODUCTION
AND SALE OF ROCK AND CLAY PRODUCTS.

Vol. II.

LOUISVILLE, KY., DECEMBER, 1903.

No. 9.

A Plea for Improvement.

We have had a number of inquiries for more modern methods of working granite in the hope, we judge, on the part of the inquirers to discover some manner by which the plainer forms of granite blocks could be cut to size and smoothed at a cost for labor that would insure their more general use, because of the reduced cost.

Modern Mechanical Tendencies.

In all important industrial lines the tendency of the day is to expend brains and mechanical skill and energy in the production of machines and appliances to enable the actual work of an industry to be carried on with only a nominal requirement in the line of skill. Take the wood-working lines for example. Not only have machines been invented for doing elaborate turning and carving of all kinds, but the machines have been made so nearly automatic, and the work of handling them so simplified, that almost any intelligent man can produce good results with these modern appliances without the old-time requirements of serving an apprenticeship. This is in short the spirit of the day in all lines; that is, the concentration of mechanical genius on the point of producing machines and appliances for turning out work of intricate character without calling for a high degree of skill on the part of the operator.

The stone industry has made some progress of course, but just read the following description of working granite which was given by Dr. Wm. C. Day in 1895, and figure out for yourself, and you can see that the progress in the stoneworking line is very slow, because there has been very little departure from this process since that date:

Skilled Operators Required.

To produce good results great skill is needed by the stonemason in the manipulation of his tools, and considerable artistic ability is required for the finer kinds of work. From the rough work of simply splitting a block or rudely spalling an ashlar face to the artistic working of highly embellished and complicated statuary carving, a knowledge of the rift and grain is important, as it indicates where heavy blows may be struck and where lighter ones are required.

Owing to the great obduracy of this stone, and the fact that the different minerals composing it vary greatly in hardness, the chief work of shaping it is still performed by hand, probably by much the same process that was used by Egyptian stonemasons more than three thousand years ago. Improvements and inventions have, however, been made from time to time in hand tools, and extensive machinery is now in use for producing certain forms and kinds of finish.

The most important improvements of the last decade include the more extended adoption of lathes for turning and polishing columns, urns,

etc., and new devices in power machinery for plain polishing. Greater economy and speed are now obtained by the general use of chilled iron globules and crushed steel as abrasive materials and of the pneumatic tool for the ornamentation of surfaces.

Implements for Stone-Working.

The implements used by stonemasons to produce common forms and ordinary finish are as follows:

Chisel.—Various forms and sizes are employed in cutting border drafts, moldings, letters and ornamental work.

Point.—A piece of steel bar drawn out to a pyramidal end; used for "roughing out" surfaces and removing "bunches."

Hand drills, wedges and half-rounds.—Used for splitting out blocks.

Hand hammer.—Used in one hand for driving chisels, points and drills, which are held and guided by the other.

Spalling hammer.—A heavy square-cornered sledge, used for roughly reducing a block by breaking off large chips or spalls from the edges, thus bringing it closer to its intended form.

Pean hammer.—Shaped like a double-edged wedge, with a handle running parallel with the edges; used to remove irregularities by striking squarely upon a surface and wedging or bruising off small chips.

Bush hammer.—Made of rectangular steel plates brought to an edge, bolted together, and attached to a long handle; used in the same manner as the pean hammer, but produces a smoother surface, the degree of smoothness depending upon the number of steel plates in the particular hammer used. These hammers, which are all of the same thickness, are called 4-cut, 5-cut, 6-cut, 8-cut, 10-cut, and 12-cut according to the number of plates used in their construction.

The Usual Process.

The usual process followed by stonemasons in shaping blocks may be generalized as follows: The block, having been split out to about the right size by the plug and feather method, is brought to a plane surface on one side, which is accomplished by knocking off overhanging edges and projections with the spalling hammer or spalling tool. Drafts or ledges are then chiseled along two opposite edges. One draft being completed, the workman lays upon it a wooden strip or rule having parallel edges. A second rule is then sunk in the draft made on the opposite side until the two drafts are in the same plane, which is determined by sighting across the upper edges of the rules. The whole face is then worked down to this plane with the tools necessary for the required fineness or finish, a straightedge being applied from time to time as the work progresses. The point is used for removing rougher projections. This is followed by the pean hammer, and, if a smoother surface is required, it is made by

bush hammering, the hammer having the fewest number of plates being used first. The required size of the face being marked out upon this surface, the position of a second face may be determined by chiseling drafts across the ends of an adjacent surface, using for the purpose either a square or a bevel, depending upon the angle it is desired to make with the first face. The projecting rock between the drafts having been removed in the manner used in forming the first surface, a third face may be projected. A winding surface is formed by using in one draft a rule or strip having its edges not parallel, the amount of divergence depending upon the amount of warp required. This rule is sunk till its upper edge is even with the upper edge of the strip, having parallel edges placed upon the opposite edge of the stone.

A cylindrical surface is worked by using curved rules in one direction, and is not as hard a matter as might at first seem. Much difficulty is, however, encountered in laying out and working spiral, conical and spherical surfaces, as it is first necessary to form plane and cylindrical faces on which to apply the necessary bevels and templets.

What Have You to Suggest.

The greatest step that has been made since 1895 appears to be in extending the more general use of pneumatic tools, and it seems to us that not only pneumatic appliances could be extended to further advantage, but there is brains and energy enough in the business to devise and bring out improvements more rapidly than appears to have been done in the last decade. We may have some ideas to suggest along this line ourselves before long, but in the meantime we would be glad to hear from those in the trade who have ideas looking to improvement including not only stoneworkers themselves, but builders of machinery and appliances for stoneworking.

The foregoing has special reference to granite, because granite seems to be the most difficult stone to reduce and to work by mechanical means, but we want to tack on to this a general plea for continued improvement in all kinds of stone work, from the quarry to the finished product. Let us exchange ideas and discuss modern appliances, not only at association meetings but through the columns of Rock Products during the coming year, and see what can be developed.

Some of the side lines of the rock product industry, particularly lime and cement, are becoming wide awake on the subject of improvement, and make it a point to discuss in detail new ideas and machines designed to improve methods of manufacturing at association meetings.

The Quarry Owners' Association might well take up various subjects in connection with machines and appliances for quarrying, and it looks like there is also room for an association of stone sawmill men for the same purpose. Of course there are other things to be expected of associations, but it is improvements we are talking about now, and we want to make improvement the order of the day throughout the coming year, and, to this end, invite you all to take a hand by giving us your ideas and reading about the other fellow's ideas in the columns of this paper, and if you will do so freely we predict that at the end of the year you will be glad you did.

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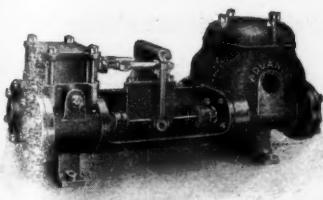
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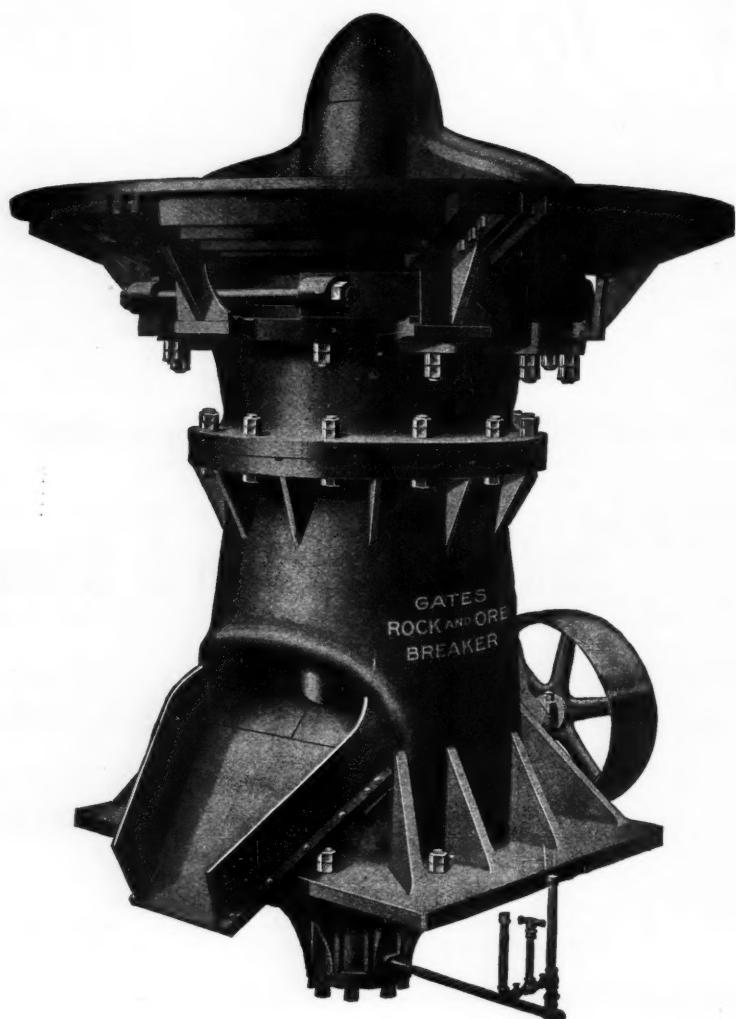
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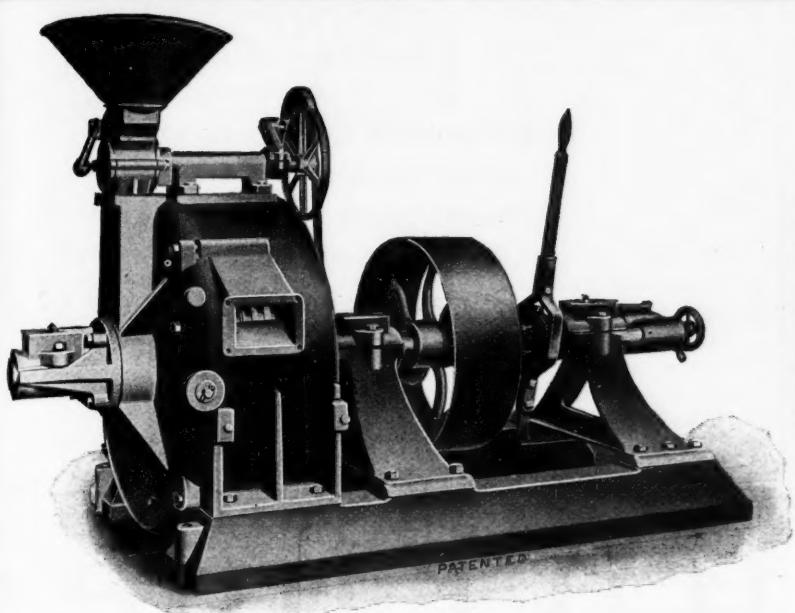
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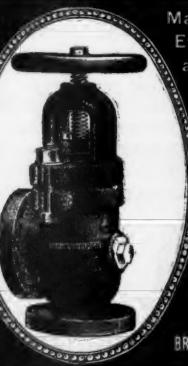
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LOUISVILLE, KY., DECEMBER, 1903.

Secrecy is a Drawback—Let Us All Work Together.

A great deal of experimental work has been done by the larger Portland cement manufacturers, most of which has been of value to the individual investigator. Most of these commercial investigators have refrained from making any of their methods or results public. They have not even gone so far as to give the public scientific proofs which they have discovered, information which in no way could injure their private business. Enough work has been done by these people along these lines to be of great value if it were all brought together, compiled and reviewed. The difficulties met by one might be the means of explaining the problem being solved by some other party. It is rather a narrow-minded view to take of any subject to feel or believe that any one firm can know all that is desirable to know in any line of manufacture. The air of secrecy maintained by many of the Eastern cement plants is rather ridiculous, since the fundamental principles in the manufacture of Portland cement, as well as most of the mechanical devices in use, have been well known for many years. This air of secrecy only causes your competitors to wish to know exactly what you have. And they will do it in spite of all you can do.

If you will go into the Lehigh Valley and go through all of the Portland cement plants, you will find no great difference in the fundamental equipment of the plants. The fact that a firm claims some secret process and absolutely refuses the public admittance to this plant, claiming that they have secrets to guard and such like, may have its good results from a business point of view, on a certain class of the public. But these things will not appeal to the better class of trade. You can better convince a more desirable class of trade that you are able to produce a better

quality of cement at a low price by showing them what you have and how you do it.

The time has gone by when secret processes of manufacture are passed down from one generation to another in the same family. The time has also gone by when the Portland cement manufacturer can procure for any length of time extremely high prices for his product. For this reason, the present is a very desirable time for the Portland cement manufacturers to get together and do everything in their power to educate the public in the use of Portland cement, so that in ordinary operations the best results shall be obtained from the use of Portland cement. The public is ripe at the present time, to take up many new cement products and Portland cement manufacturers can well afford to spend considerable money in determining new uses and the essential conditions for the successful use of Portland cement in many ways, and present them to the public. This would be a more pertinent factor in the increased sale of Portland cement than a reduction in price. It would rather tend to increase the price with increased demand.

The dealer in Portland cement does not care so much what the price of Portland cement is so long as it is fixed and stable, so that he can make his calculations and contracts, knowing exactly what he can do

LET US all put our heads together and work for a better share of industrial peace next year.

IT looks like this year has been a record breaker in the way of research in the artificial stone field.

NEW things continue to come across the water about artificial stone, one of the latest being about concrete flooring and flooring beams.

THE prospect of reducing prices on steel, cement and other building material gives promise of encouraging building operations next year.

REPORTS from Barre indicate that the granite manufacturers down that way will form a stock company to send an exhibit of granite products to the World's Fair.

SALT shipments reported at Milwaukee for ten months the past year show an increase of 300,000 barrels, or more than 60 per cent. more than the shipments in the same time last year.

THERE will be a world's congress of engineers at St. Louis next year, probably in October, which will be the greatest gathering of engineers and kindred spirits that the world has ever known.

ONE good result in the unearthing of crookedness in the methods of labor leaders the past year gives promise of being felt in the way of more conservative action on the part of labor unions next year.

WITH the letters from the trade published in this issue, there is lots of encouraging news for machinery and supply men, for the majority of stone men writing us state that they contemplate enlarging their operations next year.

THERE is plenty of evidence in this issue that the stone industry is in a healthy condition and growing right along, for in response to inquiries, nearly everybody not only reports an increased production this year, but the majority are figuring on enlarging operations the coming season.

THE building of the past year has not been so bad after all, especially in the latter part of the season. The reports gathered by our contemporaries, *The Construction News* for October, of the building operations in the twenty-four principal cities of the country show an actual gain of one per cent. over the same time in 1902.

ONE of our contemporaries has been devoting some space to the subject of prohibiting dynamite for quarrying concrete ballast. We can readily understand why one should seek to prohibit the use of high explosives in quarrying building stone, but when it comes to stone to be crushed into ballast, the idea is too far fetched. In fact, we would rather be inclined to favor the use of high explosives in such cases, because it would aid crushing operations to some extent.

THE time is drawing near for several association meetings, and we want to urge on all those in the various trades the necessity of giving due heed to these dates and make plans to be among those in attendance. Up-to-date business men have already so thoroughly recognized that these association meetings are an essential part of their business to-day that extensive arguments as to why you should attend are unnecessary. It is your duty to your business to get in line at these meetings, and once you get into the habit of attending, you will wonder why you did not go sooner.

WE are glad to note that many engineers are coming to recognize the fact that it is a waste of energy to screen crushed stone for concrete work. It is very probable indeed, that a better concrete is produced by the use of unscreened stone, since in this way an assortment of sizes are obtained and the amount of voids thus materially reduced. Less loose sand and cement will be required to fill the voids and give a fine, dense product. The builders of impervious vaults take advantage of this fact, only they work entirely with much finer materials, for instance, fine gravel, coarse sand, fine sand, limestone dust and Portland cement.

NEARLY every body in the Pennsylvania slate belt reports that they are compelled to turn down orders every now and then. They all say that they are working at full capacity with orders booked ahead. In consequence of this they are getting a fair price for their product. It has not as yet felt the depression that has been so evident in other lines of building material. One reason for this is the large demand for export trade. The Vermont people, while reporting a good business, do not seem to be overcrowded to the same extent that the Pennsylvania field is. This is probably due to the fact that Vermont slate is commanding a somewhat higher price, as is New York and Maine slate. While the Pennsylvania people do not get as stiff a price for building slate as do some other sections, they probably make up for this in the larger amount of school slate and dimension slate.

THE recent stringency in the money market, while it may have pinched some of our friends a little in the Portland cement industry, especially those that were at the developing stage of the game, appears to have really been a good thing for the industry at large, as it served to put a check on building operations, because it made it more difficult to secure the funds for building plants. There is still continued reports of new propositions in the line of developing cement property, but with money close, the chances are that there will be very little added to the cement producing capacity, except that which is had by increased capacity by those already in the business. There will be some new plants opened of course, some already under course of construction, but the outlook is not very encouraging for those simply on paper yet, to come through any way soon in any great number. All this serves to make the outlook more encouraging for cement prices next year, provided there is concerted action on the part of the manufacturers.

The Work of the Season and the Outlook Ahead in the Stone Business.

QUARRYMEN AND STONE WORKERS IN DIFFERENT LINES TELL OF A PROGRESSIVE YEAR'S WORK AND CALCULATIONS FOR NEXT YEAR.

Will Start a Crusher.

The Leathem & Smith, and the Thos. H. Smith quarries, Sturgeon Bay, Wis.—Output for the season about 6,000 cords of rubble and crib stone. The output for 1902 was 7,800 cords. The class of work was mostly Government harbor work, sinking cribs. Contemplate making improvements, including putting in a large crushing plant for macadam. Thos. H. Smith of the above concerns, will have a No. 6 Gates crusher running in the opening of navigation in the spring with a bin capacity of 1,500 yards of crushed stone. It is situated in 18 feet of water and is so arranged as to spout the product on board vessels. The stone will come from the quarry 60 feet above water level.

About the Same as Last Year.

The United States Marble Co., Knoxville, Tenn.—The output this season has been about 30,000 cubic feet, which is about the same as the production of 1902. The product quarried was marble, mostly for interior building. We sell principally to the trade and ship to all parts of the United States and Canada. Our only work of interest here in Knoxville has been the German Lutheran church.

An Active Half-Year.

The Milwaukee Granite Co., Milwaukee, Wis.—We are unable to do justice to our business if we fill out your blank inquiry as to production, without explanation. The Milwaukee Granite Co. began the construction of a crushing plant last spring and commenced shipping early in July, and has shipped in the past four months about 12,000 yards of crushed granite. We have three Gates crushers, Nos. 6, 3 and 2, and will add another crusher before spring. We have also manufactured nearly half a million paving blocks, besides building material and monumental stock.

The House of Correction Will Add Another Crusher.

The House of Correction, Chicago, Ill.—Our output this season consisted of 5,250,000 common brick and 5,730 cubic yards of crushed stone, all sizes. In 1902 the output was 4,380,000 brick and no stone. The stone quarried by us was limestone and all was used in the city work. Enlargements are contemplated for next year in the way of another crusher.

Growing Right Along.

The Chickamauga Quarry and Construction Co., Chattanooga, Tenn.—We work hard blue limestone for bridge building, concrete and various kinds of masonry, and have shipped from the quarry this year over 9,000 tons. We are not able to give the output for 1902, but it was somewhat smaller than this year. Next year we expect to increase our operations about 25 per cent. As to closing down for the winter, we never close down but work the year around.

Will Enlarge Next Year.

The Shore Line Stone Co., Monroe, Mich. (Successors to Eckert & Peabody.)—Our output this season was 125,000 tons of crushed stone, 2,500 tons riprap and 300 cords of rubble. In 1902 we turned out 50,000 tons of crushed stone, 1,300 riprap and 100 cords of rubble. Our product is limestone for railway ballast and stone for concrete paving foundations. The past season we have been furnishing the Detroit and Toledo Shore Line and also have furnished considerable ballast for the Michigan Central. We are still operating, and expect to for some time yet this winter. Yes, we will enlarge our operations next year.

Are Continually Enlarging.

The Washington Marble Co., Eakles Mills, Washington County, Md. (New York Office 1123 Broadway.)—Our output of marble this season has been 25,000 cubic feet, against a production of 10,000 cubic feet in 1902. The product was interior marble and has gone into the best buildings, taking the place of Italian marble. We are enlarging continually with the increase in our business.

Opening New Quarries.

The Imperial Limestone Co., Lebanon, Pa. (Quarries at Annville, Pa.)—We have been getting out this year about 200 tons daily of high carbonate limestone for cement manufacturers. As we were not in the business in 1902, we have no comparison with last year. We have orders ahead for the whole season's work. We are completing a railroad siding to new quarries that will give us an output of 1,000 tons daily and we expect to begin shipments from our new quarries about December 1.

About the Same as Last Year.

The Hillis Stone Co., Greencastle, Ind.—We are producers of crushed limestone, and this year have turned out about 10,000 yards, 2,600 pounds per yard. The output for 1902 was something near the same. We have on hand contracts yet to furnish from 10,000 to 12,000 yards.

Got Out a Million Feet of Marble.

The Vermont Marble Co., Proctor, Vt.—We have worked about 1,000,000 cubic feet of stone this year, white, blue, green and red marble for monumental, exterior, interior building and everything else, which is in excess of our production in 1902. We do not close down for the winter, but keep running all the time. As for next year, we expect to increase our operations.

Have Just Opened Up this Year.

The Eagle Stone Co., Mattoon, Ill. and Bloomington, Ind.—The work we have had on hand the past season is the opening up of the Eagle quarry for producing Bedford or Oolitic limestone. We will close down for the season December 1 and will open up next spring with the intention of increasing our operations next year.

A New Producer in Oolitic.

The Diamond Stone Co., Ltd., Bloomington, Ind.—We opened up a quarry of Oolitic limestone the past season and have gotten out 80,000 cubic feet. We have on hand orders for five carloads yet before closing down for the winter. Yes, we expect to enlarge operations next year.

Spreading Out in the South.

The Mississippi Valley Construction Co., Little Rock, Ark.—We are working in limestone and granite for railway construction. We are not closing down for the season now as we have several contracts to fill. Yes, we contemplate enlarging our operations next year.

Will Erect a Plant Next Year.

The American Onyx and Marble Co., Moline, Ill. During the past season we have been opening up quarries in marble, but we are now closing down for the season. We will expend upward of \$20,000.00 erecting a plant next spring.

Will Work all Winter.

The Eureka Stone Co., Eureka Springs, Ark.—We have spent the past season merely putting in a mill and opening up quarries and have kept no account of the cubic feet produced. Our product is dolomite and we expect to continue operating through the winter, and next season we expect to enlarge our operations.

Doubled their Output.

The Genesee Valley Bluestone Co., Portageville, N. Y.—Our product consists of bluestone, both blocks and sawed, and we have turned out the past year between 25,000 and 30,000 cubic feet, which is about twice what our product was in 1902. Our quarry is closed for the season, but the mill is running yet.

Has Not Opened His Quarry.

C. B. Eldred, Florence, Ala.—I am in the marble and granite business exclusively and my quarry has never been worked yet.

Have Kept Up their Regular Gait.

Shute & Rightmyer, Hudson, N. Y.—We have produced the past season about 16,000 tons of limestone for flux at furnaces and about 41,000 cubic feet for building purposes. The output last year was about the same and we will continue operating right through the winter. We will not enlarge our operations next year for we have sold most of our rock for cement.

Not as Much as Last Year.

The General Crushed Stone Co., Inc., South Bethlehem, Pa.—We produce crushed stone for ballast and road material, concrete, etc., and have turned out this year about 10,000,000 feet. Our product last year was 20,000,000 cubic feet. We will operate one of our plants all through the winter.

An Increase in Lime Production.

Mayville White Lime Works, Mayville, Wis.—Our output for the year up to November 1 was 43,200 barrels of lime and 7,000 tons of stone. At the same time last year our output was 36,700 barrels of lime, and 8,000 tons of stone. Our product in stone was limestone for building and blast furnace flux.

Only Worked from June to November.

The Seneca Lake Broken Stone Co., Geneva, N. Y.—Our output for the past season was 15,000 cubic yards of broken limestone for ballast for the New York Central and macadam road work. We only opened up in June of this year, and will close down before the end of November. Next year we expect to enlarge our operations.

A New Western Marble Producer.

Hale & Brunton, Kittridge Building, Denver, Col.—As this is a new quarry we have only taken out so far about 10,000 cubic feet of merchantable stone. We have orders for about 5,000 feet more for this year. We do not expect to close down the quarries during the winter as there is more or less building going on here all the time. We surely expect to enlarge our business next year.

Stone for Flux, Ballast Etc.

The Juniata Limestone Co., Ltd., Cove Forge, Blair County, Pa.—Our product is stone for flux, ballast, etc. From July to November 1, the past season we have put out about 76,384 tons of flux, 4,566 tons of riprap, 104,127 tons of ballast, and concrete 2,038 tons, screenings 124,336 tons. Our output in 1902 was flux 146,173 tons, ballast 54,127 tons, riprap 149,174, screenings 17,089. We quarry for flux and stone all winter, but ballast is lighter and sometimes off altogether in the winter. Yes, we will enlarge our operations next year.

One Hundred Carloads of Bluestone.

Cyrus Peak, Long Eddy, N. Y.—Our product this season has been about 100 carloads, 20 tons each, of blue stone for curbing, flagging, sills and lintels, and for 1902 it was about 80 carloads. We do not close down until winter weather sets in, and will open up again next spring with the intention of enlarging our operations.

Will Treble their Capacity.

The Toledo Stone, Sand and Gravel Co., Durand, Mich.—Our product is screened gravel to take the place of crushed stone in paving, etc., and our output the past season has been 400 carloads. We expect to close down about the last of November, and we expect to enlarge next year to about three times our present output.

Quite a Lot of Limestone.

The Sibley Quarry Co., Sibley, Mich.—Our output this season has been 326,000 tons of limestone, as against 302,000 tons last year. Our product is used for soda ash manufacturing and beet sugar manufacture. Yes, we expect to enlarge our operations next year.

Supplying Dark Granite to Quincy.

The Pleasant River Granite Co., Addison, Me.—Our business came under a new management last September and our aim now is to supply our extra dark river granite to the manufacturers at Quincy, Mass., and elsewhere, using Quincy as a distributing point. The Quincy manufacturers seem to have been hampered in the past by the inability to secure enough extra dark granite to supply the demand, and of this we have an unlimited supply that we are now shipping in the rough by vessel loads to Quincy. Mr. Thomas Mitchell is our distributing agent at Quincy.

Just a Healthy Growth.

Tarbox & McCall, Findlay, Ohio—Our product is crushed limestone for road macadam and we turned out this year about 1,080,000 cubic feet. Last year our product was 960,000 feet. We are about ready to close down for the winter.

Will Double Output Next Year.

The Hudson and Chester Granite Co., Chester, Mass.—Our product is finished monumental work and rough granite for same, and we have turned out about 30,000 cubic feet this year, which is about the same as last year's production. We will close our quarry about January 1, but will run the cutting plant all winter. We erected a 20-ton caissons this season and hope to double our output next year.

Have a Few Contracts to Fill Yet.

The Biesanz Stone Co., Proprietors of the Wittenberg (Minn.) Stone Quarries.—Our output this year has been about 40,000 cubic feet of stone for buildings, bridges, sidewalks and curbings, etc. Last year our production was 35,000. We have a few contracts to finish yet before closing down for the winter, and if business continues good will enlarge our operations next year.

Get Out Silica Rock.

E. R. Baldrige & Co., Hallidaysburg, Pa.—Our output this year has been 50,000 tons against about 35,000 tons last year. Our product is silica rock for manufacturing silica brick for use in Bessemer converters. We will very likely enlarge operations next year.

Have a Winter's Run Ahead.

The Montana Sandstone Co., 30 E. Broadway, Butte, Mont.—We produce sandstone for general building purposes, and turned out last year about 24,500 cubic feet. The product in 1902 was 30,000 cubic feet. We have a number of contracts and have plenty of stone quarried for the winter's work, so will work all winter. Our quarries are located at Columbus, Mont.

Did Not Do Much.

The Crescent Stone Co., Peoria, Ill.—Our output this season has only been about 300 cubic yards as against 6,000 cubic yards in 1902. We did not run any this year on account of the bad year in 1902, and change in the city specifications to include washed gravel as well as broken stone.

Will Close to Enlarge.

The Black Lick Stone Co., Columbus, Ohio—Our output this season has been about 150,000 cubic feet, being mostly building stone. We are closing down for the season in order to add to our equipment. We will install a No. 5 Austin crusher and add some stone saws and grinding machinery.

Will Improve Their Mill.

R. C. Harrison & Co., 241 Walnut Street, Philadelphia, Pa.—We have been sawing for the trade lime, blue and brown stone, and have worked about 10,000 feet the past season, which was about the same as our production in 1902. We expect to close down for the season and improve our mill.

Will Put in Air for Drilling.

Carl T. Wells, Redan, Ga. (Successor to Wells & Hill, Stone Mountain, Ga.)—Our output this season was fifty cars building and monumental granite. In the way of enlargements, we are contemplating putting in air instead of steam for drilling in the way of improvements.

The Biggest Year Yet.

Michael Wagner Stone Co., Sandusky, Ohio.—We did the largest business in the history of our industry the past year in dressed and crushed stone. Our product is limestone for fine cut work suitable for building. We are finishing several church and school contracts, and are rushed with orders for crushed stone. We contemplate enlarging our operations next year.

Just Getting in Shape.

The Twin Cen Granite Co., Little Rock, Ark.—We are opening and equipping our property and getting ready to begin taking out stone. Our product is blue and gray granite, and we are equipping a crusher plant which will be ready to turn out crushed granite about the first of the year. We will have a complete granite finishing plant, also.

Quadrupled Last Year's Work.

George Dugan, Bedford, Ind.—The work I have had in hand here the past season is getting out the Main Arts building at the World's Fair at St. Louis, Mo. We have worked about 80,000 cubic feet of stone this year, compared to 20,000 last year. I am almost ready to close down for the winter, but will open up next spring with an increased capacity.

Evidently a Good Year.

The Oneco Granite Co., Oneco, Conn.—We have been cutting granite for building work the past year and worked about 47,000 cubic feet. In 1902 we worked 18,900 cubic feet. We will not close down for the winter, and will enlarge our operations next spring.

Limestone for Streets, Etc.

The La Crosse Stone Co., La Crosse, Wis.—Our output this season has been 15,000 cubic yards of limestone for street paving, macadam and concrete. We did not produce any in 1902. We contemplate enlarging our operations next year.

Having a Busy Year.

The Cherokee Marble Works, Canton, Ga.—We work Georgia, Vermont and Italian marble into monumental work. Our output the past season has been about 3,500 cubic feet, and in 1902 about 2,500. We have all we can do the balance of this year, and expect to enlarge our operations next year.

Have Quite a Lot of Orders Yet.

Hughes Cress & Beavers, Decatur, Ind.—Our product is monumental work in medium-sized granite and marble, and we get our granite already cut and polished, so can not give you figures on how much we have worked ourselves. We are not closing down for the winter as we have quite a lot of orders to fill yet. We expect to enlarge our operations next year.

The Best Year in Thirty.

Ira T. Tullis, Alliance, Ohio.—Business has never been as good with me in the thirty years and over that I have been in business. I have sold up to this time nearly \$3,000.00 more than I ever have any one year, and have six weeks yet to complete the year and several good orders in sight. Prices are low and always will be as long as we have competitors that seem to be able to do the foolish wholesaler who will take all kinds of chances in order to make a sale. The result of this is felt by all good dealers that have this kind of competition, and where is the remedy?

Crushed Stone for Concrete Only.

The Richardson & Ross Quarry Co., 713 Retz Building, Philadelphia, Pa.—We have two No. 5 and one No. 6 Gates crusher at Mogeess. Our output at Mogeess in 1903 was 260,000 tons, all crushed down to 1½ inches and under. In 1902 our output at Mogeess was 196,000 tons. Our quarries are all limestone and the stone is used entirely for concrete purposes in and around Philadelphia. We have supplied all the concrete stone for the Filtration plants in Philadelphia. We do not intend to enlarge the Mogeess crushing plant next year. We finished building a crushing plant at Ivy Rock, Montgomery County, Pa., August 15, and will crush by January 1, 1904, 90,000 tons. We have three No. 6 Gates' crushers at this plant, with a capacity of 1,200 tons in ten hours; all stone crushed below 1½ inches.

Only Crushing for Their Own Use.

The Western Ohio Railway Co., Lima, Ohio.—We are only crushing stone for our own use in maintaining our railway tracks.

Get Out Building Blocks.

The Portage Entry Quarry Co., Jacobsville, Mich.—Our output this season has been 123,000 cubic feet, and also 1,400 cords of foundation stone, which was about the same as our output in 1902. We quarry block stone for building purposes and ship to Western and Eastern cities. We do not contemplate any enlargements next year.

Make a Specialty of House Trimmings.

George Rackle & Son, Cleveland, Ohio.—The work we have had on hand the past season is building trimmings and our output this year was about 25,000 cubic feet, against 15,000 cubic feet in 1902. We have a \$6,000.00 contract on hand yet to fill and are enlarging our operations steadily.

Putting in a Pneumatic Plant.

J. W. Gooch & Co., Waco, Tex.—We have been getting out granite for monumental purposes this last year and are now putting in a pneumatic plant and traveling crane. Our quarry is in Llano County, and our works are at Waco.

Get Out Monumental Granite.

The Northwestern Granite Co., Baker City, Ore.—Our output of granite the past season was 1,500 cubic feet, against 500 cubic feet quarried in 1902. Our product was for monumental work and we expect to enlarge operations next year.

Will Add Pneumatic Plug Drills.

The Excelsior Granite Co., Heath Springs, S. C.—We only opened our quarry in July, since which time we have installed machinery and quarried and gotten out 4,500 cubic feet up to this date. Our product is granite for monumental work. In addition to our prospect equipment we will put in pneumatic plug drills.

Mill Block Marble.

T. J. Royce, Rutland, Vt.—I am quarrying marble in mill blocks. Have quarried 16,000 cubic feet, but am now closed down for the winter.

The Entrekin Quarry Co. has been incorporated at Gray Court, S. C., with a capital stock of \$5,000.00. The incorporators are: D. J. Entrekin and L. C. Dorroh.

The Walton Quarries, Harrisburg, Pa., who, in addition to quarrying and crushing stone, also make a patent process fertilizer lime and are preparing to push this lime product more extensively than ever next year. In the crushed stone line they say they have been unable to fill orders and are increasing their capacity.

The Eyre Construction Co., West Chester, Pa., recently took out from its Hishkininitas, Pa., quarry a block of stone measuring 95 feet in length, 45 feet in height and 35 feet in width, containing 6,000 cubic yards, and weighing 12,000 tons. The company is erecting some massive bridges for the Pennsylvania railroad.

The Buffalo Oolitic Limestone Quarries Co. is one of the newly organized concerns that seems to be preparing to enter the Oolitic limestone district of Bloomington, Ind. The company has a capital stock of \$500,000.00, and the incorporators are: Oscar H. Cravens, editor of the Bloomington World; George F. Danforth, formerly librarian at Indiana University, and M. L. Danforth.

The Easton Quarry and Limestone Co., First National Bank Building, Easton, Pa., Clifford W. Lyons, president, and Benson C. Boileau, C. E., treasurer, have opened up an old quarry five or six miles from Easton, and have it in good shape for the production of limestone. This stone is such that they can furnish stone to cement plants 98 per cent. calcium carbonate. Some of the cement plants in the Lehigh district need such a limestone in order to bring the composition of their cement to the most desirable point. The officers of the above company comprise a firm of consulting engineers and cement experts. In consequence of this, they should have an up-to-date quarry equipment and should be in position to not only get into the cement trade but the flux business as well.

From Our Own
Correspondents.

GREATER NEW YORK

NEW YORK, N. Y., November 25.—This has been a very slow month in the building business. Work was given over for the winter on some of the buildings, and when a strike was called on the work being done by the Fuller Co., it added greatly to the general appearance of stagnation. Nevertheless, many important pieces of work are going on uninterruptedly and conditions are much bettered. The new Housesmiths' Union has "hitched up" satisfactorily with the Iron League, besides agreeing to the Employers' Association plan of arbitration. The stonecutters have since similarly come around and it leaves only the old Housesmiths No. 2 outside of the new arrangement. In this there is much promise of stability for the new year and, despite an occasional pessimistic opinion, the feeling is one of confidence and hopefulness. Common bricks have held at \$7.00 to \$7.50, and the absence of snow and other winter conditions have enabled the yards to catch up on the loss occasioned by the floods and to get up stock enough to go over the winter. Cement is steady at \$1.45 to \$1.65, and there has been a large demand for it for other than strictly building purposes. Lime and plaster have held their own.

Mr. Boise, of the Associated Lime Companies, says that business has been fair, though the building end of it has been slack. Prices remain unchanged; common 75c, and Joints \$1.00.

The new Quaker Portland cement mill, about which so much general interest has been shown on account of the contemplated thoroughness and of its construction and completeness and novelty of its plans, will not be ready as soon as was hoped. Advices at the office, 26 Broadway, are to the effect that owing to the building strikes which have hampered their New York contractor, they have suspended work on it temporarily and have roofed it over to protect it through the winter.

Mr. Moyer, of the Vulcanite Portland Cement Co., said they had no complaint to make of the entire year's business. The demand has been good right down to date with them. Prices latterly were very low, but at least they remained steady. As to the outlook for the coming year, Mr. Moyer did not coincide with the many depressing forecasts. He said that from a number of interviews with architects and builders he thought that the year would be about normal. It promised nothing like the outlook that was before the trade in the spring of this year, but from the number of plans filed and the assurances of going on with them that he received, he felt confident that it would be at least a fairly good year.

Mr. Hiram Snyder said that owing to the natural conditions, even exclusive of the building troubles, cement was a little slow just now. Nevertheless, there is a fair demand, although the price is not what it ought to be by any means, recent events in the building business have tended to clear the air and all parties can profitably learn something from them. He thinks that an increased feeling of confidence is the result which will manifest itself when operations are renewed in the spring; and he looks to see an advance in price which is not only much desired but much needed by the manufacturer.

Mr. Perry, of the Rockland-Rockport Lime Co., says there is no change in prices over last month. Business has been fair notwithstanding the building troubles. While work on so many prominent buildings has been stopped, yet it has been going steadily on with many smaller jobs, which has kept up a pretty good demand for lime right along. Like many others who are close to the building trades, Mr. Perry thinks that the events of the past few months here have helped greatly to better the conditions, and that next year we may start with a reasonable assurance of peace and security.

Mr. James Wotherspoon is now comfortably settled in his new offices in the Johnston Building, where he finds himself within convenient reach of

a major portion of the building trade. He reports a very good business for the past six weeks, with orders coming in freely to run well over into the new year. The market price has not advanced over the recent figures, but present and immediately prospective trade shows up so well that he feels warranted in stiffening up the price for coming deliveries.

Mr. W. H. Kirtland, 1123 Broadway, says that advices from the slate fields are to the effect that mills are busy and trade is holding up very well. In fact, there is nothing special to report. The volume of trade is good and prices rule about the same and are steady. Mr. Kirtland has added to his business by taking the agency for some European marble quarries, which he will represent here. The marble, which he will handle in the block, is richly mottled and veined, running from a dove color to a high red, and taking a beautiful polish, some excellent samples of which may be seen at his office.

The National New Process Lime Co. has sold a No. 2 Broomell Keystone Lime Kiln to Harry A. Harcourt, of Albany, N. Y., which is to be erected at Rensselaer, N. Y.

The Hudson River Blue Stone Co. reports trade to be holding up very well. They have been and are now very busy. Prices are holding up very steadily and without question will stay there. Stock is very scarce. The building strikes, although curtailing orders for building purposes, have not in reality affected the business because the demand for flagging and curbing has been so great that it was exceedingly difficult to get enough stone for those purposes; and had there been a call for more for structural uses, it would simply have been impossible to supply it. Altogether the outlook is very good.

John Maxwell's Sons report substantially the same condition of affairs in the blue stone trade, the bulk of which in this locality is handled by these two firms. Stock has been just as scarce with them, but they have filled all their orders and have a supply that will carry them over the winter till the quarries resume work again. Building work has not been missed, as curbing and flagging took all their product, and the business is more and more centering down to those two classes of work. The scarcity this season brought in some Pennsylvania stone, which is smoother and easier to work than the New York stock, but is not nearly so hard and durable, and it finds a market here only when the home product runs unusually scarce. Altogether it has been a very good season, and the outlook for the coming year, though depending entirely on the contingency of corporate appropriation, is very encouraging.

H. G. Kotzen has just sold a large pneumatic plant in Siberia, the first ever installed in that distant but progressive region, and which will enter there by way of the port of Vladivostock. They are now looking for a capable person to act as granite quarry foreman and also to take charge of the pneumatic machines. They say this is a very good opening for an energetic man to make his mark in a new field in a growing country.

Mr. Noyes F. Palmer, speaking of the twin subjects of hollow building blocks and artificial stone, said the hollow block idea was old and the original patents on it expired a generation ago. As to the future of the business, it is looming up larger and larger daily. Engineers are studying it for heavy construction and builders are looking into it for ordinary house construction. Like everything else, it has had to go through its early hard struggles. But the industry has now got beyond that rudimentary stage and architects are now availing themselves of a product made on perfected presses every block of which is mathematically true and exactly the same size.

Mr. T. D. Cone, of the National New Process Lime Co., is now in New York, where he will remain for some time to catch up with his correspondence and inquiries about the company's kilns and process which have come in from all parts of the United States.

SYRACUSE.

SYRACUSE, N. Y., November 20.—The proposed Barge Canal, which will extend from Buffalo to New York City, taking in the principal cities in the central part of the State, is of greatest interest to the trade here, as Syracuse is one of the cities included in the route. The canal will benefit dealers and manufacturers, as its construction will require immense quantities of cement, stone and other kinds of building material. The amount appropriated for the building of the canal is \$101,000,000.00.

With the building of the Barge canal comes the question as to whether the Erie canal should be kept open as to those parts which pass through the cities. The question is of vital importance in Syracuse as the plants of the National Wall Plaster Co. of America, The Paragon Plaster Co. and the New York Brick and Paving Co., all of which are located on the canal, will be adversely affected if that part of the Erie and Oswego canals which pass through the center of the city, is not kept open. In the case of the Paragon Plaster Co., sand is shipped in by canal from Black river. The New York Brick and Paving Co. boats its clay from the beds of Three Rivers, fifteen miles distant. The Chamber of Commerce is considering the question and a mass meeting will be held at which it will be thoroughly discussed.

The manufacturers of cement are seriously considering the advisability of closing their plants during the winter months. Charles A. Lockard, general manager of the Empire Portland cement works at Warner, said that he had been obliged to close his factory for a few weeks on account of the cylinder head of one of their 500 h. p. engines blowing out. As a rule the weather during a greater part of the winter makes it impossible to operate the Warner factory. His company has large stock of goods on hand and could close down during the winter without serious inconvenience. Mr. Lockard says he believes it is a good plan to work off the present stock during the winter and to begin again in the spring.

Lyman C. Smith, of the Hudson Portland Cement Co., says that his plant will probably not close up as he has no surplus stock and will be obliged to keep going all winter in order to fill orders.

Duane Miller, one of the owners of the Wayland Cement Works, at Wayland, N. Y., has this to say: "We will shut down as usual after about a month to make the annual repairs and give the men a rest. We are all sold up and need to keep busy in order to fill orders. The strikes in New York have affected the industry in many parts of the country, especially in Pennsylvania. Instead of empty bins one finds two or three million barrels of cement. It would seem the best thing to do to close down. This will throw anywhere from 50,000 to 100,000 men out of work."

George W. Pack & Son have received a shipment of two boatloads of cement from the new plant of the Hudson Portland Cement Co. This is the first that has been received in this city. A test has been made by F. J. Schnauber, city engineer, and also by the Semet-Solvay Co., and both have resulted far beyond expectations. The cement is being used in the new L. C. Smith Typewriting factory. Large sales have been made for government work. George W. Pack & Son have the agency for Syracuse, Cortland, Cazenovia, Jordan and other towns in Central New York. They report a good trade in lime, especially quick lime. Their brick yard will be closed as soon as the kiln which is now burning is completed.

Articles of incorporation of the Georgia Mica and Mining Co. have been filed in the County Clerk's office. The capital stock is \$50,000.00. The directors are: Earl Thompson, Norman E. Dillenbeck, Asa L. Merrick and Jay B. Kline.

The Chittenango Pottery Co., in which Syracuse men are the leading stockholders, has had a successful season. Its steins, tankards and jardinières have become deservedly popular.

Gov. B. B. Odell, Jr., has appointed Hoyt H. Freeman superintendent of the Onondaga Salt Reservation at Syracuse. This reservation furnishes brine to salt manufacturers at a nominal sum and is under State control.

The recently formed Utica Pressed Brick Co. will probably locate in Canastota, N. Y., where they will build a plant to cost about \$200,000.00. Durhamville is making an effort to have the plant locate there and they have offered a site. E. A. W. Jeffries is the promoter. The company has bought 250 acres of clay at Vienna, N. Y., and will locate its plant so that the clay can be easily shipped from that point. Canastota has also offered a site and its business men have taken a large block of the stock.

Owing to the unusual amount of building at Auburn, N. Y., the building material plants there have not been able to supply the demand. Fred W. Harvey owns a brick plant in Wright Avenue and Saunders Brothers another in South Street. There has been considerable trouble at Auburn with the building trades unions. The union men demand a larger increase in wages and it is said that some of the trades will ask for another increase at the opening of the next season.

CHICAGO.

CHICAGO, ILL., November 25.—Now that the season has practically closed it is gratifying to notice the satisfactory condition of building in Chicago. The figures for September and October fall only a little below the totals for October a year ago, which was the banner month in ten years past. During the latter month permits were taken out for the construction of 568 buildings, fronting 21,030 feet, the cost being estimated at \$2,840,170.00, against 563 buildings, 17,579 feet of frontage and \$4,050,200.00 in cost, an increase of five buildings, 3,451 feet of frontage and a decrease of \$210,000.00, as compared with the same month a year ago. For the month of November it is said the figures will show up better than many expected, but they have not yet been officially announced.

This city has a notion in its head that the price of crushed stone is too high, and has a project in hand to spend about \$30,000.00 putting in a crusher, so as to make the city independent of the stone men. The wise heads of the city are figuring that crushed stone can be furnished by the city at a cost not exceeding 80 cents a cubic yard, while they say it is now costing \$1.60 to \$1.90. They expect, by using their own crusher, on this basis, to save \$140,000.00 a year. This looks big on paper, but it remains to be seen whether or not it will work out as they figure it. Some other cities have tried experiments of this kind and found that the stone men can furnish stone cheaper than the city can.

The brick yards in Chicago and vicinity are going into winter quarters. Thirty yards, employing 1,500 men, are closing up for the winter and the closing of several other yards will lay off over 450 more men. The yards are closing a little earlier this year, it is said, because of the enormous quantity of brick on hand. The price of brick this summer, which was \$4.25, is said to be the lowest price for many years, but notwithstanding this the yards seem to have continued producing large quantities.

Patrick J. Sexton, president of the Chicago Brick Co., Chicago, Ill., died October 27 at his home, 1340 Michigan Avenue. Mr. Sexton was born in Ireland 57 years ago, but was brought to this country by his parents at the age of four. He was attracted to Chicago after the fire of 1871 by the large amount of building, and as he had already made a reputation as a builder he had plenty of work from the start. Soon after he came to the city he began the manufacture of brick, which business he has carried on successfully since.

The directors of the Chicago Brick Co. held a meeting and elected Thomas D. Sexton, son of the late Patrick J. Sexton, as president of the company.

William Kissack, president of the American Lime Stone Co., an independent concern, reports business quiet, and his firm is now closing up the odds and ends of the season's business.

The Producers' Supply Co., and the Knickerbocker Ice Co. have handled during the past year 60 per cent. of the crushed stone and sand which went into street paving.

The Chicago Gravel Co., with offices in the Fisher Building, Dearborn Street, is rapidly coming to the front. This company is a consolidation of the Powell Gravel Co., Hammond Bros., and the Calumet Improvement Co., and is incorporated under the laws of Illinois. The general manager of the company is Mr. Frank W. Renwick, a man who thoroughly understands his business. Its several gravel beds are located as follows: Old Powell pit at Joliet; Hammond Bros. pit, near Elgin; Spalding pit at Spalding, Ill. The company has just purchased 240 acres South of Joliet, known as the Flathead, containing product estimated at 10,000,000 cubic yards of gravel. The products of the company comprise bank run gravel, washed torpedo sand, crushed cobble; also washed sharp sand, the latter used for plaster and crushed gravel. The company has handled this past year from three quarters of a million to a million cubic yards, and has been limited in its business owing to lack of cars to transfer its various products. The company caters largely to railroad ballast work, having supplied this year ballast material to the Chicago & Erie, Chicago Junction, C. M. & St. Paul, and Chicago and Alton railroads. Have also contracted with the Chicago & Western Indiana railroad for all the ballasting to be used on their track elevation, and the Joliet, Plainfield and Aurora electric line now building and operating between Joliet and Aurora.

Mr. Renwick says that business this year has been good, with prospects for 1904 even better. Their gravel product is meeting with a most fa-

vorable consideration at the hands of our Board of Local Improvements. The city is going to try some washed screen gravel as a substitute for broken stone for street work. There is a difference of opinion among contractors and stone men as to the durability and general efficiency of the gravel, but a test will decide its merits.

The Lake Shore Sand Co., 308-9 Chamber of Commerce Building, is closing up its season's business and finds its accounts on the right side of the ledger. The business of the company has been good, but falls considerably below that of the season of 1902, which was an exceptional building year. Mr. Geo. H. Stebbins is president, and J. S. Pulney secretary. Mr. Stebbins has placed an advertisement in this issue of Rock Products in which special attention is directed to his automatic washing and settling box, for washing and separating materials from foreign matter. This machine, wherever in operation, has given the best satisfaction, and by those who have used it is regarded as one of the best sand washers in use. It performs its work thoroughly and satisfactorily.

Mr. Hugh Murphy, a big Omaha contractor, was in the city at the Great Northern a few days ago. He reports the stone business very good, and that his extensive granite and sandstone quarries in Colorado are being operated to the fullest extent of their capacity. From all accounts he has a remarkable property out there—great deposits of the finest granite in the world, lying in close proximity to a beautiful sandstone which makes the most satisfactory building stone. He says he could have furnished the columns for the Government building here, full length and perfect, with great ease, instead of, as they now are, in separate pieces. He is considered one of the shrewdest stone contractors in street paving and other public work.

Mr. Armfield, of the Armfield & Cartwright Co., Portland, Ind., extensive stone and lime manufacturers, is at the Stratford Hotel. He is in the city for treatment for rheumatism and is now rapidly regaining his usual health. His firm is one of the most prominent and successful in Northern Indiana, and is now contemplating making some important improvements in its plants. Their broken stone department is becoming more important every year, and it will be a feature of their business in the future.

Mr. Jesse George, of Princeton, Mo., was in town a few days ago, looking after a railroad contract for broken stone ballast. He and his brother, O. B. George, of Gillman, Mo., have two large plants of Gates' crushers now at work, one for the C. B. & Q., and the other for the Wabash, and are turning out large quantities of stone.

In the local market there is a sagging in the prices of building materials, and the situation is reported by all the dealers as one of caution and quietude. Brick are moving only as wanted. Lime is at a standstill and prices are nominal. It can be had at low figures, but is not in urgent request. Prices are fluctuating—cheap enough for the man who wants to buy.

CHATTANOOGA.

CHATTANOOGA, TENN., November 27.—The winter building record in this and other cities of Tennessee will be up to the standard, with the United States government taking a hand in large enterprises at several points. Prices are ruling very firm in lime, cement, etc., with a tendency to advance.

It is thought that a branch of the Tennessee Granite Brick Co. will be located in this city. The management, mostly Memphis and Little Rock gentlemen, have made investigations at both Nashville and Chattanooga, and both cities will likely have branches. The company has been incorporated to manufacture brick from sand and lime.

Cornish Bailey, of Demopolis, Ala., has been in Tennessee this week interesting capitalists, it is said, in the Demopolis Cement Co., which has recently had some paving contracts in Atlanta, Ga. The company has a capacity of 1,000 barrels a day and in conjunction with other cement companies, is pleased at the outlook and help that will be given the cement trade by the construction of the Isthmian Canal.

The Miller Paving Co., of Memphis, has contracts for concrete work to the extent of \$38,000.00 for the railroads operating on Broadway and other streets there.

The Chickamauga Cement Co., of Chattanooga, will erect a new plant in the spring. They are located at a suburb of Chattanooga, Rossville, on

the Central of Georgia Railroad. The company is now behind 2,500 barrels on orders and it is quite busy. They manufacture the Dixie cement and will likely go into the Portland brands in the spring also.

BIRMINGHAM.

BIRMINGHAM, ALA., November 25.—The building operations in and around Birmingham, Ala., are still quite active and the dealers in lime and kindred building material report conditions very good with them. The prospects are that through the entire winter there will be more or less work done requiring lime, cement, stone and other products in this line. Good prices are prevailing.

The Birmingham Sand-lime Brick Co. expect to have their plant, being erected at North Birmingham, near here, completed in the next few weeks and will put it in active operation at once.

The Sayre Mining and Manufacturing Co., capital stock \$200,000.00, has been organized and incorporated in Birmingham. Through its principal object is to mine coal and manufacture coke, it has the right in its incorporation papers to quarry rock and stone, manufacture brick and produce other building material, and it is stated that this will be done in the near future.

L. N. Archer, manufacturer of monuments and dealer in marble, is Consul Commander of Jurisdiction I, of the Woodmen of the World, the fraternal insurance order. The jurisdiction includes several Southern States. Mr. Archer gives much of his time to the work.

The Nashville (Tenn.) Paving and Roofing Co. has secured the contract to pave several blocks of streets in Birmingham, some with bituminous macadam and others with vitrified brick.

A. Stockmar, general contractor and at the head of a stone and marble company here for years, is interested in the sand-lime brick works being erected at North Birmingham, and also in the Loop Draft Boiler Co., just organized with \$100,000.00 capitalization. Mr. Stockmar has had several big contracts for building in Birmingham, among them the city hall, the big department store of Lovemena, Joseph & Loeb and others. He is at present building a large extension to the power house of the Birmingham Railway Light and Power Co.'s plant. Mr. Stockmar is a member of the Board of Aldermen, representing the Ninth ward.

Mr. J. R. Copeland, one of the principal stockholders and officer in the Jefferson County Brick Exchange, is a member of the Board of Aldermen in Birmingham also. The Jefferson County Brick Exchange control millions of brick per annum.

The W. J. Clark Co., Salem, Ohio, is sending out a neat and suggestive mailing card which tells about their "Quick as a Wink Hose Coupling."

We have received from Secretary T. A. Randall, the official report of the 17th annual convention of the N. B. M. A., which was held in Boston last February. The report is neatly bound.

One of the most elaborate folders that has come our way the past month is one gotten out by the Chicago Belting Co., the "Two Winners," giving a picture of the cup-defender and the reliance belting.

The Lunkenheimer Co., Cincinnati, Ohio, advise us that they have opened up a branch office in Paris, France, located at No. 24 Boulevard Voltaire, where they carry a complete stock of their brass goods.

The Climax Road Machine Co., Marathon, N. Y., has favored us with a copy of their illustrated catalogue of road making machinery, including crushers and a full line of machinery, both for making road material and putting it on the road.

Mr. Frank Toomey, No. 127 N. Third Street, Philadelphia, Pa., has kindly remembered us with his latest machinery list. This includes engines, boilers, motors, steam and electric hoists, gas and gasoline engines, air compressors, pumps, blowers, etc.

Reeves Bros., of Alliance, Ohio, report that new cement mill work is slackening off materially, but there is a great deal of work doing among cement mills in the way of repairs and work tending towards the increase of plant capacity or for reduction in the cost of production.

The Maslin Machine and Pump Works, of which John Maslin & Son, 167 First Street, Jersey City, N. J., are proprietors, manufacturers of improved centrifugal pumps, get out an illustrated folder that tells about pumps, and also gives information about ordering, setting and operating pumps.

Granite.

BARRE.

BARRE, VT., November 25.—Whitcomb Bros., the well known quarry machinery firm of Barre, will soon be out with a new catalogue, and it is expected that there will be some new types of machinery listed which have not been manufactured by this firm before.

There is talk of the Smith, Whitcomb & Cook Co. making some material changes in their plant, which will give increased capacity and greater facility for handling work promptly. A portion of the plant has been in use over sixty years and is good for many more.

James Ahern, the popular tool maker for Barre district, is busy but would put on a few more men if more work was offered. Mr. Ahern is thinking of putting in some new machinery which will save him some hard labor.

Emslie & McLeod are moving along in the even tenor of their way, paying strict attention to business.

If it were not for Burke Bros.' big sign you would need a guide to find them.

Ask Young Bros. how long they are going to leave that old sign up.

Andrews & Sons are busy with the orders from their regular customers.

Milne, Clarihew & Gray are always busy but could nearly always do a little more if crowded. Mr. George Milne is held in such high esteem in the community, that he is kept busy caring for matters of trust for his friends whenever the firm's business will permit it.

The D. S. L. Granite Co., of East Barre, which started only a few years ago, is gradually getting their plant equipped with modern machinery.

Mr. Sullivan, of Sullivan, Bisson & Co., East Barre, has plenty of stock in for a good winter's work, and says let it snow.

Mr. Carroll, of Carroll & McAnulty, says he is so busy he has no time to see his babies in day light any more.

D. R. Williams & Co. are moving along nicely, and have become accustomed to the absence of a former partner.

Greasor Bros. are in much the same shape as Mr. Sullivan. Some horizontal blondins have been put in here, but we have not heard as yet how well they are liked.

McDonald, Cutler & Co., have been supplying their Western agents with a great deal of nice work recently. Some of it has gone almost to the Rocky Mountains.

C. D. Swasey & Co. are looking closely after Vermont and vicinity for the monument business, and do not cater so much to the trade in the far West. They report a good to fair trade.

Mr. H. Somaini, of Williamstown, Vt., says my shed is not so big as my neighbors', but I am doing something all the while.

G. Walker & Son say we are still on the same old stamping ground and pounding along at the same old pace.

C. W. McMillian & Son are rapidly picking up the business lost by the enforced idleness during the settlement of the estate of Mr. Stephens, a former partner.

J. T. Marion is an ambitious young monument manufacturer with some good business sense in his head, and we will hear more of his shed some time.

The firms which have not already done so are hustling to get their sheds and quarries in ship shape for heavy weather. The long cable at the Wells, Lamson & Co. quarry, which has been recently installed, will greatly increase their facilities for handling material.

The quarry of the Barre White Granite Co. was opened up some years ago, and was formerly known as the Wheaton quarries. While these quarries produced good stone they did not reach any marked prominence until the present firm took hold of them, but in a few years under the able and energetic management of N. D. Phelps they have become known in many fields as large producers of curbing paving, bridge and building material, as well as light monumental stock.

QUINCY.

QUINCY, MASS., November 23.—Business at this writing is normal. The trade is finishing up work preparatory to commencing on the influx of spring orders. The quarries have been taxed for the best of their yield, in anticipation of the winter season which generally places an embargo upon the expeditious handling and delivery of stone. Altogether the signs are good for a fair season's work. The trade will not be harassed by difficulties which were prevalent a year ago. Better freight facilities for the shipment of rough and finished stone are now available, and there is little or no danger of the manufacturers being hampered through timely delivery of orders on account of stock shortage.

The Manufacturers' Association has been discussing the necessity of enlarging its membership list. Time was when every manufacturing establishment allied itself with the association. Of late new firms have started in business and to date have seen fit to hold aloof from the manufacturers' organization. There are about a dozen of such concerns and it is alleged their conduct of business is not along the lines laid down by the local association. Therefore, for trade betterment the association is to seek means to bring these firms into the fold. Much good will be derived from such action, and it behoves each firm to take hold and help the parent organization in its effort to bring about results to the good of the trade.

John L. Miller, of the firm of Thomas & Miller, who was stricken with pneumonia while traveling, has been able to be removed to his home in this city, where he is now on the road to speedy convalescence.

C. S. Keezer, for many years in the employ of the Milford, N. H., granite company, has accepted a position with the Quincy Granite Quarries Co. He will superintend the finishing department of the local concern.

The office of John R. Richards was badly gutted by fire on the morning of November 21. The fire caught from an over-heated stove and was extinguished with difficulty. Several valuable designs and papers were destroyed. The department succeeded in confining the blaze to the office, thereby saving the large cutting shed which adjoined.

Mr. Temple, representing Temple Bros., of Rutland, Vt., Wm. J. Gray, of Gray & Sons, Philadelphia, Pa., Mr. Taintor, of Barre, Vt., and R. J. Haight, of the *Monumental News*, of Chicago, were among those to visit the trade during the past month.

Returns from the shipping depots show that business is on the increase. October's figures amount to 12,250,499 pounds, against 11,396,044 pounds shipped during September. Last month's total was distributed as follows: West Quincy, 6,443,139 pounds; Quincy Adams, 4,944,990 pounds; via Quarry Railroad, 863,370 pounds. Total, 12,250,499 pounds.

The Springgarden Brick Co., Ltd., has completed a new plant at York, Pa.

Among our visitors this month was Edward Bogk, president of the Ricketson Mineral Paint Co., of Milwaukee. Mr. Bogk was making a family visit as well as telling the trade at large that the finest grade of mineral paint is manufactured by his company. His journey extends further Eastward.

Irving H. Reynolds, chief engineer, will retire from the Allis-Chalmers Co., Chicago, Ill., and the duties of chief engineer will be assumed by engineers in charge of the various departments, these engineers availing themselves of the advice of Mr. Edwin Reynolds, consulting engineer of the company.

J. G. Speidel, manufacturers of elevators, dumb waiters and hoisting machinery, Reading, Pa., is sending out an illustrated circular describing their one-ton improved ceiling screw winding machine for belt power elevators. They will be glad to send this circular to any one interested and also furnish any other special information desired.

A recent visit to the Blake Rock Crusher Co., Pittsburgh, Pa., and to the two plants building crushers for this company, indicated that Mr. Blake has not been idle in the last few years. Several crushers were going out and a large number were under process of construction. It is possible that before a great while the Blake crusher people will have something of interest to the lime people.

Mr. W. H. Van Sickle, superintendent of the Thomas H. Dallett Co., Philadelphia, Pa., says the outlook for business in their line has never been more encouraging. They are receiving a large number of inquiries from all parts of this country and abroad for their portable, electric and rope driven drills, and stone surfacing machines, etc. They have also booked large orders recently from quite a string of well known concerns.

We have just received a little pamphlet from the Buckeye Testing Laboratory, Columbus, Ohio, called the "Modern Foundryman," which contains considerable interesting data with reference to the foundry factors which applies to malleable iron and a number of tables showing the uses of the common metals, furnace tempers and weights of common metals per cubic foot with analysis of common irons. This will probably be obtained from them by writing for it.



QUARRY OF THE BARRE WHITE GRANITE CO., BARRE, VT., SUCCESSORS TO WHEATON QUARRIES.

Cement.

An Able Contribution to Cement Literature.

In reviewing Vol. 5, *Transactions of the American Ceramic Society*, we find a valuable article as the result of the efforts of Mr. A. V. Bleininger. This is a very able contribution to the literature of Portland cement manufacturers. The author presents in a clear and concise manner, the conclusions as to the constitution of Portland cement by various investigators of note, such as Chatelier, Toernbohn, W. B. and S. B. Newbury, Dr. Tomei, Prof. Rebiffat, A. Hauenschild, Prof. Carl Zulkowsky, Dr. Michaelis Liamin, Dr. Hart, A. Myer and others, bringing the knowledge as to the constitution of Portland cement up-to-date in a condensed form. Following this, the author presents some of the results of his own work done for the Ohio Geological Survey in 1902.

The Chemical Activity of Calcium Oxide.

This was studied by grinding calcium carbonate together with flint in a wet ball mill so that a mixture of the formula 0.25 CaOSiO_3 was produced. This was burned at temperature intervals of 100 degrees, ranging from 800 to 1,200 degrees, and finally at 1,350 degrees Cent., the total silica and cement soluble in hydrochloric acid and sodium carbonate, the alumina, iron, and carbon dioxide were determined by analyses. From the amount of soluble silicic acid, and the amount of calcium oxide, the formula of the compound obtained was determined. With one exception, the results obtained were very consistent. The soluble silica found at 800 degrees was 5.94 per cent., while at 1,350 it was 22.73 per cent. The heat of hydration, from the calcium oxide uncombined with the silica seems to be a good index as to the progress of the chemical activity, since the calorific value of the hydration of lime is rather high, and for that of silicates very low, if anything at all. A number of tables are given which show the progress of the reaction by means of calorimeter test. Magnesian silicas were examined in the same way, but owing to the extreme slowness with which magnesia hydrates, the results can not be near so reliable; they stand only as a suggestion, rather than a close analytical determination.

The Grinding of Raw Material.

Mr. Bleininger considers that fine grinding of the raw material for Portland cement manufacture previous to its burning is very essential, and considers it wise to use some such test as Whitney's for the purpose of determining the condition of the raw material. This can easily be modified so as to become useful in most laboratories. It can be carried out as follows: Take 5 grams of dry, raw cement mixture, make up into thin paste with water and wash through the 80, 120 and 200 mesh sieve respectively. Dry and weigh the residue of each sieve. The mixture washed through the 200 mesh sieve is transferred to 250 c. c. beaker and enough water added if necessary, to make 200 c. c. of slurry. Stir for one minute, let settle for one minute and siphon off carefully, the supernatant liquid. Repeat this process until the liquid is clear; remove, dry, and weigh the residue. The washings which have been removed are now boiled down, allowed to settle for three minutes, and siphoned off. This is continued until after three minutes, the supernatant liquor is clear. The residue is dried and weighed as before. The third washings are collected, stirred and allowed to settle for nine minutes, siphoned and weighed as before. The sediment is dried and weighed. There are now found by sedimentation, the first sediment coming in sizes between the 200 mesh sieve and one minute settlement which was found to range between 0.0088 inch and 0.0004 inch for quartz. Second, the deposit from three minute settling, ranging between .0016 and .0002 inch; third, sediment of nine minutes' settling correspond to size of other 0.0011 to 0.00014 inch. The same method has been applied to ground Portland Cement though in this case alcohol re-distilled over caustic

lime was used. A table is given which shows the degree of fineness of cements ground in several of the best sorts of machinery, the Griffin mill, tube mill and millstone. This table is hardly sufficient to condemn any one machine for grinding, but it does indicate the degree of fineness which has been obtained by the American manufacturer of Portland cement.

Chemical Composition and Hydraulicity.

Several tables are given which are only a preliminary to a large amount of synthetic work being carried out by the author. These indicate that temperatures below 1,100 degrees Cent. are too low to bring out the full hydraulicity of flint and kaolin mixtures. A table of results in which dolomite was used instead of calcium carbonate seems to indicate that there is a very narrow temperature range in which hydraulic activity develops. Kaolin and flint mixtures were more effective than the pure kaolin mixture. In concluding, the author makes the following statement: "The Portland cement series seems to show that high silica clays invariably produce the best cements, provided of course, that the mixture contain the proper lime ratio, is ground sufficiently and burnt thoroughly. The addition of free silica as sandstone is in many cases of great benefit. In order to do this economically, the stone should first be calcined in a vertical or any other suitable kiln and quenched with water while hot. It should be ground separately, being added to the mixture in a ground condition. This is due to the fact that quartz does not grind well when enveloped by particles of clay. The addition of a small amount of iron ore often assists vitrification and improves behavior of poor cements. It appears that rotary kiln clinker contains the greater part of iron as ferric oxide in spite of the black color of the clinker.

Our knowledge of cements must be built up step by step, synthetically and analytically, by a natural reasoning process and can not be increased by purely hypothetical assumptions. Too much theorizing and not sufficient experimental work has been done."

The Wolverine Portland Cement Co. has declared a 5 per cent. dividend on its capital stock of \$1,000,000.00.

The National Portland Cement Co., with offices in the First National Bank Building, Easton, Pa., expect to have a new 16-kiln plant in operation by Spring.

The Bronson Portland Cement Co. has acquired some of the property of the Kalamazoo (Mich.) Cement Co. and has increased its capital stock from \$500,000.00 to \$1,000,000.00.

George Baker, representing Philadelphia capitalists, has been in Louisville the past month looking over the grounds with a view to organizing a company to develop cement property.

The new 24-kiln plant being built by the Atlas Cement Co., near Allentown, Pa., is nearly completed. Its location is near the mammoth plant of this company which has 46 kilns.

It is said that the El Cajon Portland Cement Co. plant at Alpena, Mich., will be completed in time to put cement on the market next summer. The general manager of the company, H. Kimball Loud, is at work with quite a crew of men getting things in shape for the erection of the plant.

Hobson & Smith, of Mobile, Ala., have sold for the Hudson Cement Co., 50,000 barrels of Portland cement to Lewman & Co., to be used in construction of locks and dams on the Bigbee river at Demopolis, Ala. This is the first of the product of the New Hudson Cement Co. to be sold in the South, but it is said they are talking of establishing a depot at Mobile.

It is reported that Elbert Walker Shirk and Joseph H. Shirk, of Peru, Ind., heirs to the \$5,000,000.00 Shirk estate, have become interested in the Midland Portland Cement Co., which has headquarters at Indianapolis, Ind., and is equipping a plant at Bedford, Ind. It is said they have invested \$100,000.00 in the company and that Elbert W. Shirk has been elected vice president.

The Portland Cement Co., Denver, Col., has recently enlarged its plant to twice its old capacity, and is now producing 1,200 barrels of high grade cement a day. This company has also built one of the largest plaster plants in the country, which is under the supervision of an experienced plastering engineer and will turn out 200 tons of plaster a day. The general sales agent is G. W. Bartholomew, with office in the Colorado Building, Denver, Col.

A new concern known as the Great Southern Portland Cement Co., is being organized at Selma, Ala., to erect a cement plant with capacity of 2,000 barrels a day. The officers of the company are: E. J. Hoag, president; B. F. A. Saylor, first vice president; F. D. Sanborn, second vice president; W. R. Batchellier, treasurer, and James E. Whitney, secretary, all residing in Boston except B. F. A. Saylor, who is from Rome, Ga.

The Southern States Portland Cement Co. which has been building a plant at Rockmart, Ga., and has headquarters at Atlanta, Ga., has its plant about ready to begin operations. The plant is equipped throughout with up-to-date machinery for doing an extensive business and has been almost the entire year in building. The company has 400 acres of land containing raw material in abundance, and will be quite a factor in the cement industry in the South in the future.

Mr. Morris Ebert, 302 Walnut Street, Philadelphia, Pa., importer and distributor of Manheimer Portland cement, reports very good business in foreign cement up to June, 1903, but since that time, he has materially curtailed the imports and only carries on hand such stock as is needed for special use, as he says it would be folly to compete with the American cement at the present price. He also reports from one of his agents in Canada that in that country there is a very heavy overstock of German Portland cement. In consequence of this, the imports of German Portland cement into Canada for the next year is bound to be very light. The importation into the United States will also be light. There will always be a little demand for German cements by those who have used them and want them for certain specific purposes, but so long as the price of the American Portland cement remains below \$1.50 per barrel f. o. b. factory, there will be comparatively little foreign cement used in this country.

The Alma Cement Co., with Mr. B. B. Lathbury, of the firm of Lathbury & Spackman, consulting engineers, as president; Frederick Strauss, vice president, Mark T. Cox, secretary and treasurer, and Wm. J. Donaldson, in charge of the sales department, with offices in the Betz Building, Philadelphia, will soon be in the cement market. The Alma Cement Co. has purchased the property of the Alma Portland Cement Co., at Wellston, Jackson County, Ohio, the mill of which was destroyed by fire in 1901. The company has acquired about 3,500 acres of land at Oreton, on the Hocking Valley & Ohio Southern railroad. The plant is being entirely rebuilt, and will be ready for operation about January 1, 1904. The plant will have a capacity of 1,600 barrels. They do not expect to be in the market before the first of March, since they desire that their product should be properly aged before it goes out. The raw material on which they will work is the lime stone which lies over the No. 4 vein of coal in Ohio, and has proven to be a satisfactory source at several points. Owing to the fact that all of the raw materials are on the one property, i. e., limestone, shale and fuel. The conditions are very good for economic production. The company is building a thoroughly equipped laboratory for both chemical and testing work, and have issued a neat folder which contains many tests made by different people on the Alma Portland cement, which was made from the same source of raw material.

How to Distinguish Portland from Slag Cement.

At the Fifth National Congress of Applied Chemistry, the statement was made that it was not possible by chemical means to determine the proportions of a mixture of blast furnace slag and Portland cement. H. Seger and E. Cramer, of Berlin, Germany, have investigated this statement, and published the results in *Chem.Zeit*, 1903, page 879. They find a distinct difference in the capacity of these two bodies for the absorption of water, as well as a great difference in the solubility of each in water. For instance, the mean value of a number of water absorption tests gave 11.46 per cent. for Portland cement, and 0.78 per cent for slag. The solubility of the two showed fully as great a difference. This is a very interesting fact, and one of great importance to users of Portland cement, and builders' supply dealers in general, since it ascertains the means of detecting the admixture of slag cement with Portland cement in any quantity, or the sale of slag cement for Portland cement. This is very apt to be done when the price of Portland cement is high, since slag cement can be made at a very low figure, and its physical appearance is much the same as Portland cement.

ROCK PRODUCTS.

Artificial Stone

Charles W. Boyle, Grand Rapids, Mich., has patented a new machine for making sand brick.

The Pick Brick Co. has a new plant in operation at West Bend, Ind., making sand-lime brick.

John Christensen & Sons are figuring on erecting a plant at Spencer, Iowa, to manufacture cement tile.

The Federal Granite Brick Co. has been organized at Scranton, Pa., with a capital stock of \$35,000.00.

Jabez Hedges and James Simeox, of Lancaster, Ohio, contemplate going into the cement block business.

The Holland (Mich.) Sand-lime Brick Co. is getting its plant in operation and ready to begin active work.

The Arizona Sandstone Brick Co. has started up a new plant at Prescott, Ariz., and is now turning out sand-lime brick.

The Mohawk Stone Co., Palatine Bridge, N. Y., and the Mohawk Valley Stone Co., of that place, have been combined.

The Southern Hydraulic Brick Co., Charlestown, S. C., has its plant operating and it is said to be turning out 20,000 brick a day.

The Reconstructed Granite Co., Norristown, Pa., of which A. E. Barnes is manager, has a number of orders ahead, enough in fact, to keep them going steadily all winter.

The Elgin Artificial Stone Co. has been incorporated at Elgin, Ill., with a capital stock of \$10,000.00. The incorporators are: J. C. Henderson, R. F. Hetherington and F. W. Sheppard.

The Concrete Construction Co., Alliance, Ohio, has been incorporated. The incorporators are: C. O. Scranton, manager; George R. Craven, W. M. Ellett, W. S. Epperson and C. C. Baker.

The Union Sandstone Brick Co. has been organized to equip a plant at Lafayette, Ind. Among the interested parties are John W. Pertz, Elwood, Ind., and James Davis, of Anderson, Ind.

George Logan, of Michell, S. D., who is interested in the cement block business along with Miracle & Miracle, Sioux Falls, S. D., contemplates installing a plant at Michell to manufacture this product.

The Pennsylvania Gas Improvement Co., of Philadelphia, is building a new gas plant at Port Washington and using concrete construction throughout. Another is contemplated at Easton, Pa., in the near future.

The Tennessee Granite Brick Co. has been incorporated at Memphis, Tenn., with a capital stock of \$15,000.00. The incorporators are: M. J. Johnson, S. M. Apperson, G. C. Bennett, A. S. Caldwell and Bolton Smith.

C. J. Curtin, New York representative of the American Sand-Lime Brick Machinery Co., has been figuring with the Board of Trade, of Chester, Pa., and other parties in that vicinity on a sand-lime brick proposition.

The Wichita (Kan.) Silica Brick Co. has been organized with a capital stock of \$45,000.00, to equip a sand-lime brick plant. Among those interested are: L. C. Jackson, C. L. Davidson, G. T. Walker, G. C. Easley and H. L. Piper.

The Granitoid Paving Co., of 605 Heed Building, Philadelphia, Pa., report that concrete paving has been very active in the vicinity of Philadelphia during the last year and they have business in sight for the greater part of the winter.

The Golden Gate Brick Co., San Francisco, Cal., has perfected its organization and elected officers as follows: W. G. Wridge, president; Frank Rehorn, vice president; B. G. McDougall, secretary-treasurer, and Fred Dodd, general manager.

The Standard Stone Co. is erecting a plant at York, Pa., to make artificial stone. The superintendent of the works is Jacob McClenahan.

The new plant of the Deadwood Pressed Brick Co., Deadwood, S. D., was started up last month. The company manufactures sand-lime brick.

The Lake City Stone Co. is equipping a plant at Dunkirk, N. Y., to manufacture litholite. This concern is incorporated with a capital stock of \$15,000.00. The incorporators are: Peter Meister, Peter Meister, Jr., P. R. Bradley, E. D. Warner and S. T. Coleman.

There is a prospect for a lime-sand brick plant at Dayton, Ohio. The concrete plant started there sometime ago decided to quit business. This was not brought about through any failure of the blocks, but rather due to differences of opinion among the members of the company.

The Trussed Concrete Steel Co., Union Trust Building, Detroit, Mich., are on the market with a new re-inforced or trussed concrete construction. As the name of the company implies, all beams, lentsils, etc., are re-inforced by the establishment of a system of steel trusses imbedded wholly within the concrete.

The Ohlemacher Brick Co., Michigan City, Ind., which has been manufacturing sand-lime brick for a couple of years, seems to be enjoying a good trade in this product. It is reported that they have just closed a big contract with the Cable Piano Co., calling for 2,000,000 brick for the erection of a new piano plant at Laporte, Ind.

The bridge recently constructed by the I. C. Railway, North of Carbondale, Ill., is said to be one of the largest concrete bridges in the world. It is a double-track bridge and has three concrete arches 140 feet in length. The estimates on the amount of concrete used state that there were 12,000 cubic yards put into this structure.

The concrete work on a 30-inch sewer with a brick arch at Medford, Mass., under the direction of Wm. B. Taylor, city engineer, cost \$6.70 per cubic yard for concrete placed. The cost per linear foot of this sewer was \$1.44, which Mr. Taylor says is materially cheaper than the same sized sewer could have been laid with vitrified pipe.

Mr. Jesse J. Haase, secretary of the Houston Brothers Co., Pittsburg, Pa., is very enthusiastic over concrete building block construction and has built a handsome cement block house under the direction of an architect, which has attracted a great deal of attention in Pittsburg. They have looked on it as a sort of curiosity and many people have gone out of their way to see this building.

The Glens Mills Crushed Stone Co., Glens Mills, Pa., have taken up a new line to utilize quarry waste. They are making concrete block from quarry screenings and dust, sand and Portland cement. They are also making a special impervious building block as well as impervious cemetery vaults. A sample building is now being erected in Philadelphia. The Noyes F. Palmer machines are being used.

The Rider Automatic Sand and Cement Press Co. has been incorporated in the District of Columbia, with a capital stock of \$700,000.00. The headquarters of the concern are at Detroit, Mich., and the general manager is E. Corliss Kelly. The officers of the company are: President, Hon. Frank W. Wheeler, of Bay City; vice president and manager, E. Corliss Kelly, of Detroit; secretary, M. R. Bacon, of Wyandotte.

One of the enterprising men in the artificial stone field of the South is W. H. Fisher, 384 Second Street, Memphis, Tenn., patentee of the Fisher Hydraulic Stone System. By Mr. Fisher's system concrete blocks are made with hydraulic presses which are automatic and adjustable to different sizes. By his system he says that curbstone 6x20 x60 inches can be made at the rate of 100 a day. His machines are made in four sizes.

Henry Maurer & Son, 420 East 23d Street, New York, have been using a method of binding hollow blocks, which might easily be used by cement block people. It consists of a groove in the top of the hollow blocks into which long strips of scrap iron may be imbedded in cement mortar and thus give much greater rigidity to the walls. This method of building should appeal to those who desire to build concrete bins and storage houses, which must necessarily carry considerable lateral pressure on the walls.

The Mosaic Tile and Cement Brick Machinery Co., has been organized at Detroit, Mich., with a capital stock of \$700,000.00, to promote the E. W. Rider process to make brick from cement and sand. We judge the purpose of this company is to sell rights and equip plants. The officers of the company are: Frank W. Wheeler, president; Dr. T. A. Parker, secretary; M. R. Bacon, treasurer, and George B. Davis, chairman of the board.

Mycenæan Marble.

United States Consul M. J. Burke, writing from St. Thomas, Ontario, Canada, under date of October 26, 1903, reports improvements in the manufacture of Mycenæan marble, an artificial material used extensively in the decoration of halls, houses, hotel lobbies, etc. In the report this material is sometimes referred to as coral marble or coral tiling. The consul says the Mycenæan marble is practically a real marble artificially manufactured; that it is greatly admired for its columnar and wainscoting effects; that it has been put into many of the large hotels, public buildings, etc., of Canada and the United States. The color effects are considered especially fine and the durability of the tiles is said to be very great. Another advantage noted is the applicability of the tiling to almost any surface, rough or smooth. No patents have been taken out in the United States. The process is said to be a secret one, known only to the inventor, who has sold his rights to a Canadian company. Parties interested in securing further information will no doubt find the consul ready to co-operate with them in obtaining it.

An Active Year in Development.

During the last year there has been great activity in the development of artificial building materials of all sorts. The efforts of investigators along this line, have, no doubt, been greatly accelerated by the high price of skilled labor. One evidence of this being the case, is shown by the fact that most of the artificial building materials are of such material, or so made as to entirely eliminate the use of skilled labor, or else to materially reduce the amount of skilled labor necessary to be used in getting this material into a building. It is a well known fact that concrete blocks, either hollow or solid, can be laid in the wall much cheaper than brick, whether they be of concrete or of clay.

There certainly has been a great variety of patents issued in the last year on this class of material, using all sorts of raw material; for instance, the English patent, No. 17,579, consists of a mixture of lime, a silicious sand, and ferrous oxide or oxide of chrome iron. These are moulded and hardened in the same way as sand brick, with steam and under pressure. To render impermeable, a mixture containing oxides, silicates of lead, potassium or sodium and boric acid, or borates, is used. This is a fluxing material which melts at a comparatively low temperature, and by subjecting the brick to a cherry red heat, the surface will be vitrified.

Another patent granted for the manufacture of refractory material, is essentially the same as the manufacture of sand brick. This consists of a mixture of quartz, containing marl with hydraulic lime, or of lime mixed with oxides of the alkaline earth group, or oxide of iron, or oxide of aluminum.

Another English patent makes an improved fire proof material, by mixing to a pulp with water, 75 per cent. of asbestos, 20 per cent. of blast furnace dust, and 5 per cent. of Portland cement. The boards or blocks are moulded and dried by artificial heat, or in the open air.

Another investigator makes use of corundum as the basis for a refractory brick. The binder which he uses is not stated.

The following composition for the manufacture of an imitation marble has been patented. The composition consists of burnt fire clay, or clay, spar, quartz, gypsum, marble chipping, etc., ground to a powder, and mixed with magnesite (Venetian cement) and magnesium chloride and water.

Another artificial stone mixture consists of 37 parts of fluor spar to 63 parts of calcium sulphate. The mixture is then heated to fusion.

Another product is made by adding 25 per cent. silica or clay.

An artificial limestone has been patented in this country, which is made from a mixture of ground quick lime and slaked lime, which is treated alternately with carbon dioxide (CO_2) and air until hardened.

Lime.

The National Lime Manufacturers' Association.

Meets Semi-Annually.

A. NEWTON, Chicago, Ill., President
PETER MARTIN, Huntington, Ind., First Vice President
W. B. HILL, Kansas City, Mo., Second Vice President
CHAS. WARNER, Wilmington, Del., Third Vice President
C. W. S. COBB, St. Louis, Mo., Treasurer
E. H. DEFEBAUGH, Louisville, Ky., Secretary

Official Organ, ROCK PRODUCTS.

Association Meeting at Pittsburg.

Don't overlook the fact that you have an engagement, Mr. Lime Man, at Pittsburg, January 19 and 20. This engagement is with President Newton and the other officers and directors, and members of the National Lime Manufacturers' Association. A program of excellence will be prepared, and those who attended the semi-annual meeting at Toledo last year will anticipate with pleasure, this gathering. Every member as well as non-member has been asked to furnish sample of his lime, and we think the exhibit will be an interesting one. Some special features will be brought forward, and we hope you will make your plans to be with us.

Have Their New Process Ready.

Messrs. O'Connell & Feeley, of New York City, inform us that they are now prepared to place on the market their chemical system of hydrating lime, which they have thoroughly covered by patents. They claim to have in this system, not only one of the most perfect as to results, but one of the most simple and economical in working, because by its use they avoid the necessity for expensive bolting cloth, mixing machines, storage tanks, and all the consequent handling, and produce a thoroughly hydrated lime by a shorter process. After two years of its manufacture in their own works, and its extended use through that time by one of the largest firms in New York, they say it has shown itself to be perfectly free from swelling, and say that this claim can be substantiated by reference to the parties who have used and tested it. These parties are so well satisfied that they have made arrangements to take all the output of the two plants of O'Connell & Feeley. The process can be seen in operation at the works of the James O'Connell Lime Co., and the work of O'Connell & Hillery Co. They have just contracted to fit up a new plant with the James O'Connell patent boilers and kilns and the O'Connell & Feeley process for hydrating lime, particulars of which will be announced later. As to the cost of installing this process, they say that it is nearly nominal, where there is already a serviceable boiler, engine and mill. In such cases they say they will fit up their process for \$200.00, and other considerations, the money not to be paid over until it has been fully demonstrated that the results equal their claims and representations.

T. J. Taylor, of the Orofino (Idaho) Lime Works, is preparing to build a new up-to-date kiln.

The Western Lime Co., Huntington, Ind., is preparing to erect a hydrating plant.

Messrs. Gruber & Benfield have leased the lime kilns of Daniel D. Heins, at Bechtelsville, Pa.

Arthur Todd, West Redding Conn., has started a lime kiln, and is said to have a very bright outlook ahead.

The Diamond Lime and Grit Co. has been organized at Gouverneur, N. Y., to put lime grit on the market for poultry.

A. Sidney Rambo, who is a manufacturer of mineral wool at Pottstown, Pa., intends to erect a patent lime kiln this winter.

The Union Lime Co., Hayton, Wis., lost a warehouse by fire last month and also had some damage done to its kilns and machinery.

The Waite Lime Co., Glen Falls, N. Y., is spreading out, building new warehouses and otherwise equipping its plants for increased trade.

A new concern known as the Dominion Lime and Quarrying Co. has been formed in Nova Scotia with a capital stock of \$50,000.00, to develop limestone deposits at Cape Dauphin, Victoria County.

The Standard Lime Co., Rockland, Wis., has filed an amendment to its charter increasing the scope of its work. The president of the company is E. H. Lyons, and the secretary is W. A. Titus.

The lime kilns in the village of Limerock, near Providence, R. I., are reported to be enjoying an active time with plenty of orders ahead. Among the busy ones are the Harris Mand Wright kilns.

The Norris & Christian Lime and Stone Co., Marion, Ohio, has been doing some successful experimenting with a Scott-Strobel automatic dirt loading machine which loads dirt into wagons at the rate of about one cubic yard a minute. This machine is said to save quite a lot of cost and labor in stripping for quarrying operations.

Duffs Patent Co., Frick Building, Pittsburgh, Pa., report that the gas producer plant of the LaGarde Lime and Stone Co., at LaGarde, Ala., has been running six weeks and to their entire satisfaction, and that they have been able to produce a better quality of lime, more mellow and more rapid in slaking, than had been done prior to the installation of the gas producer.

The J. B. Ehrtsam & Sons Manufacturing Co., Enterprise, Kan., and the Harrison Supply Co., 32 India Wharf, Boston, Mass., have shown somewhat similar taste in selecting designs for calendars this year, as the feature of each design is a swell beauty named "Cosette." There is difference enough in the calendars, however, to distinguish them, even if they have the same taste in beauty. J. B. Ehrtsam & Sons Manufacturing Co. are builders of mills, making a specialty of plaster plants and similar equipments. The Harrison Supply Co. are well known dealers in all kinds of stone working appliances.

The General Building and Construction Co. are building a fibre wall plaster plant in New York City. The main office is 100 Broadway, New York.

The United States Gypsum Co., with headquarters at Chicago, Ill., and plant all over, has installed several Voglesong wood fiber machines in different plants.

The California Wood Fiber Plaster Co. has engaged E. C. Haire, formerly of Grand Rapids, Mich., as calciner at its new gypsum plant at Oakland, Cal.

The Central Elysia Wood Plaster Co. has been incorporated at Augusta, Me., with a capital stock of \$10,000.00. The incorporators are: F. L. Dutton and E. F. Whittum and others.

A patent wall plaster that will please the lime manufacturer, H. M. Hanmore, Los Angeles, Cal., has invented this mixture for this purpose. Diatomaceous earth 50, lime 30, kaolin and fiber, 10 parts each.

Mr. Alexander Forrester, of the Forrester Plaster Co., treasurer of the National Plaster Manufacturers' Association, and closely affiliated with a number of concerns in the plaster business, is now planted somewhere in Florida, where he will enjoy life in the cold months. His many friends wish him joy in the Southern climate.

We have received from the Vermont Black Slate Co., Northfield, Vt., prospectus of their proposition to develop slate property. This concern has organized with a capital stock of \$200,000.00, and its purpose at present seems to be to interest capitalists in the stock of the concern. The stock is listed at a par value of \$10.00. The pamphlet goes into the details of the manufacture and use of slate and is illustrated with pictures from the slate belt.

Plaster.

The National Plaster Manufacturers' Association.

Meets Semi-Annually.

H. E. DINGLEY, Syracuse, N. Y., President
A. H. LAUMAN, Pittsburgh, Pa., First Vice President
L. G. POWELL, Toledo, Ohio, Second Vice President
JAS. LEENHOUTS, Grand Rapids, Mich., Third Vice President
ALEXANDER FORRESTER, Cleveland, Ohio, Treasurer
E. H. DEFEBAUGH, Louisville, Ky., Secretary

Official Organ, ROCK PRODUCTS.

A Clay Used as a Retarder in Hard Wall Plaster.

A clay of high absorptive property discovered by W. C. Knight is known as Bentonite, comes from the Larime Mountains, and a number of counties in Wyoming. It is largely used as a retarder for the hard finish for plaster work. It is probably only used as a carrier or absorbent of the real retarding agent. There is a great difference in the value of a clay for this purpose. Talc or soapstone is sometimes used for the same purpose. The composition given by Thos. T. Reed in *Engineering and Mining Journal* is:

Silica (SiO_2)	60.18
Alumina and oxide of iron $\text{Al}_2\text{O}_3 - \text{Fe}_2\text{O}_3$	26.58
Calcium oxide (lime) (CaO)	0.23
Magnesium oxide (Magnesia) (MgO)	1.01
Sodium oxide (soda) (Na_2O)	1.23
Potassium oxide potash (K_2O)	0.00
Water (H_2O)	10.26

The Plaster Industry in Amoy, China.

Regarding the plaster industry at Amoy, Vice Consul Carl Johnson writes as follows from Amoy, China:

"Plaster of Paris is not an article of commerce here. It is imported only in small quantities by the two foreign hospitals for surgical purposes."

"Gypsum, which is said to be quarried near Shanghai, is imported in moderate quantities and, strange as it may seem, is said to be used by the Chinese principally as a medicine. The imports of gypsum in 1901 amounted to 129,276 pounds, valued at \$1,134.00."

"The annual consumption of calcined plaster and wall plaster can not be estimated, but is very large. Most Chinese houses are built of cheap brick, and are plastered both inside and out. Large quantities of plaster are also used for the making of Chinese graves, almost all of them being entirely covered with it."

"The lime used in building, etc., is entirely of local manufacture. In this locality it is procured by burning oyster shells. In the interior of the province it is made from limestone. It sells in this port for about 75 cents per 100 pounds."

"For the better class of houses and graves it is customary to use one-third each of earth, sand, and lime, with a varying amount of Portland cement. This is imported from Hongkong, usually in barrels of 375 pounds each. This cement which comes from Green Island, near Macao, is increasing in use for graves on account of its durability. The imports for 1901, the latest data available, amounted to 121,562 pounds, valued at \$1,133.00."

Are Now In Shape for Business.

The Standard Plaster Co., Buffalo, N. Y.—Some months since, you mentioned the fact that we were opening up new gypsum mines. We are pleased to state, that we now have in operation our new mines with the most complete shaft house and mining appliances, and are in better position than ever to serve our trade with calcined plaster manufactured from the best gypsum rock found in this vicinity.

For the Retailer.

The National Builders' Supply Association.

Meets Semi-Annually.

JOHN A. KLING, Cleveland.....	President
C. E. McCAMMON, Cincinnati, Ohio.....	Vice President
GORDON WILLIS, St. Louis, Mo.....	Vice President
J. N. THAYER, Erie, Pennsylvania.....	Treasurer
RICHARD KIND, Toledo, Ohio.....	Secretary

Official Organ, ROCK PRODUCTS.

The Annual Meeting.

The annual meeting of the National Builders' Supply Association will be held at Buffalo February 2, 1904. You should make your plans to be on hand, if you are a builders' supply man, or if you are a manufacturer selling to these gentlemen. This is one of the great times of the year when the builders' supply business is just like an exchange. You can imagine you are on the board, you are not only in the lobby but in the meeting, as the exchange of ideas in trading not only means better methods to the manufacturer and handler of building material but a better price for the material man when he co-operates with his brother in the business.

The Third Annual Meeting of the Ohio State Association of Builders' Exchanges.

The Ohio Builders' Exchanges held a meeting at Zanesville, Ohio, October 28 and 29, with President Schoedinger in the chair, and about 100 delegates in attendance. One of the subjects that came in for animated discussion at this meeting, was that of contractors and material men being too anxious for business. The subject of credits also came in for attention. There were a number of interesting papers presented at the meeting, one of them being the "Urgent Need of Employers' Associations to Handle Labor Matters," by Fred H. Weeks. On this subject the Ohio State Association of Builders' Exchanges passed the following resolutions:

This association reaffirms and adopts at its fixed policy the principles of the National Association of Builders "that absolute personal independence of the individual to work or not to work, to employ or not to employ, is a fundamental principle which should never be questioned or assailed; that upon it depends the security of our whole social fabric and business prosperity, and that employers and workmen should be equally interested in its defense and preservation."

In addition to the foregoing we assert the right of individual trades to deal directly with their workmen upon the question of wages and other conditions of employment without interference or dictation from any individuals or organizations not directly parties to the agreement.

No person should be refused employment, or in any way discriminated against on account of membership or non-membership in any labor organization, and there should be no discrimination against or interference with any employee who is not a member of a labor organization by members of such organizations.

While this association is not opposed to organizations of labor along legitimate lines, it is decidedly opposed to the boycott, the sympathetic strike and any and all forms of personal intimidation.

This association declares its opposition to the restriction of the opportunities for young men to learn a trade, the rules of apprenticeship being in some of the trades now almost prohibitive and reducing to an unwarranted extent the supply of skilled craftsmen.

Before adjourning the association elected officers as follows:

President, F. H. Weeks, Akron; first vice president, R. L. Queisser, Zanesville; second vice president, R. L. Watson, Columbus; third vice president, William R. Hattersly, Toledo; secretary and treasurer, Edward A. Roberts, Cleveland.

The officers of this convention were: F. O. Schoedinger, president, Columbus; first vice president, J. R. Squire, Youngstown; second vice president, F. H. Weeks, Akron; third vice president, J. S. Dudley, Newark; secretary-treasurer, E. A. Roberts. R. L. Queisser, president of the Zanesville Exchange, and Cuas. E. Baker, secretary, bore the local responsibilities, ably aided by Mayor W. E. Deacon and various committees. Delegates' headquarters were at the Clarendon Hotel, and the sessions were held at the Builders' Exchange rooms, top floor of the new People's Bank Building, a stone's throw away.

Handling Opportunities.

It is just a year ago now since I took it on myself to write you something on the opportunities of business, and as there seems to still be opportunities hanging around in the cold because some man has not discovered and taken them in, there can't be much amiss in again calling the subject to mind. Sometimes an opportunity becomes so persistent that it forces itself into one's business and lends a helping hand for quite awhile before one recognizes it, but there are many good opportunities floating gently around that are at times difficult to recognize and clothe in the right light, and, as I said once before, some men will stumble all over an opportunity and never know what it is.

Some Human Logic.

An opportunity is a queer sort of animal. Some times you make a grab at something you think is a bright opportunity, and find that you have caught nothing but a pipe dream, and then you may catch another one that looks like an easy thing, and find that it is as full of tricks as a kicking mule. Just to show you, I heard two men talking about cement the other day. One of them is sure that he sees an opportunity ahead in the cement market. He says prices are off now, and it is the time to grasp an opportunity and buy cement. His idea of this opportunity is to buy in good quantity for storage, and then contract for a lot more for future delivery, so that when things wake up in good shape again and prices begin to climb he will be right in line with a margin of profit that is big enough to make the business look like clipping coupons from government bonds. The other fellow couldn't see the matter in just that light, for he said cement matters were in such an unsettled condition that he would rather wait for indications of a stiffening in price before buying heavily. This latter man was a logical human, for it is human logic to steer clear of a declining market, but to rush in and buy actively when prices start to climb. I am not going to attempt an explanation of why this is; in fact, I have not been thinking as much on this peculiarity of humanity as I have on the matter of opportunities kicking up, and I can't help but wonder just how much bucking this cement business is going to indulge in before it settles down to study pulling—you know a bucking mule makes a good puller when he once gets started right, and it's only a question of how long and how severe the bucking will be.

A Double Barreled Moral.

You have all heard about steel, and its ups and downs? Well, I know a man who got a tip early in the game that a certain class of steel used by his firm was going up. He took advantage of it by contracting right away for more of it than his firm would need for years, then waited quietly till prices went kiting and turned his contract to good account by selling at the high prices. Afterward—that's the trouble, there is always an afterward to these things—many men of many kinds put money into steel stock to their sorrow. Now there is a kind of double-barreled moral I want to draw from this. On the one side of it is that fair prices, without any extreme fluctuations either way, makes the best business and the cleanest margin of profit for all concerned, and is the most satisfactory generally, and the other is that one man's gain in a thing of this kind is another man's loss. Also, I might add that you never know who is going to be the gainer and who the loser—it's too much like going to the races and playing on tips gained from various sources.

The Right Kind of Opportunities.

The right kind of opportunities, the ones you want to freeze on to, and work for all they are

worth, are those that help you and the other fellow, too, instead of helping you at the other fellow's expense. Opportunities of this kind may not be as easy to find as the others, but they are worth searching for. And, since we are on the subject of cement, it looks to me like there is an opportunity coming the way of some of the building supply people in the cement brick and building block business. I think, too, that this subject has been brought before the readers of Rock Products heretofore, but it won't hurt to talk about it a little more. The question of merit between the cement brick and the lime-sand brick is a matter that may be open to some discussion, but there is nothing in the sand-lime brick proposition for building supply men to take up as a side issue. Sand-lime brick calls for the equipping of a plant and going into the brick business right, but what I had in view in the cement block business line is something that can be taken up as a side issue and worked at at off times. Presses for this class of work are not very expensive, and many of them call for no power or other appliances further than a press and drying space for the brick.

The Cement Brick Business.

There are two things about the opportunities in the way of the cement brick that appeal to me; one of them is in that the brick will furnish means for using up any surplus supply of material that may be in your way, and another is, that it furnishes employment at odd times, and also puts the building supply men in shape to cater to the demand for artificial stone. It looks like the world is going artificial stone crazy sometimes, and instead of the building supply man sitting back and looking on, there is a chance here for him to take a hand in the game. I don't believe that the cement brick business will close up the clay brick yards, or anything of that kind, but I do believe by following up this line of work it can be made a good side issue to the building supply business. An encouraging feature with it this year, too, is the decline in cement prices, and if this is followed up with improvements in cement manufacture to such an extent as to tend to cheapen the production of Portland cement, it will help matters considerably along that line.

There are other opportunities, too, and if you will dig around and use your eyes, ears and brains, you ought to be able to capture one here and there, and this is a good time of the year to make an effort in this line. I want to suggest, as I did once before, that you write to the dealers in various kinds of building material and other side lines that might be taken up to advantage, and get their catalogues and circular matter, this being a very appropriate time for this on account of the beginning of the new year being a time when a great deal of new stuff is gotten out. Then you can take these catalogues, and by careful study of them from time to time, get a clue to an opportunity now and then that otherwise you would never have thought of.

C. R. O.

Looks Good In Kansas.

C. A. Wright, Atchison, Kan.—The lime trade is fair and the business outlook here is very good. We handle lime, cement, plaster, sewer pipe, fire clay, coal, wood, etc.

Lime Demand on the Increase.

Burum Bros. & Co., Augusta, Ga.—Business is very good in building material. We find a good demand for American cement, but there is very little imported cement sold in this part of the country. The sale of lime is steadily increasing.

Cement Slow, but Lime Fair.

C. H. Comstock, Ashkum, Ill.—The lumber trade is brisk but there is only an average trade in other material. This year's crop of sidewalk finished cement has been slow, but the lime trade has been fair. We handle grain, coal, lumber, lime, sand, rock plaster, cement and stone, also manufacture and sell brick and tile.

The Superior Slate Co. has been incorporated to develop slate property near Martinsburg, W. Va. The president of the company is O. W. Kennedy, of Uniontown, Pa. The officers of the company are: O. W. Kennedy, president; C. P. Kefover, secretary.

The Kay County Stone Manufacturing Co., Braman, Okla., is getting a new plant started to manufacture concrete building blocks, etc.

Monuments.

M. W. Keith is completing an up-to-date marble shop at Kent, Ohio.

C. V. Inks is building and equipping a new marble shop at Ligonier, Ind.

J. A. Paddock, Manhattan, Kan., will add machinery to his marble works.

F. C. Hoffman & Co., Quincy, Ill., have purchased the stock of Brosi & Brinkoetter.

It is reported that John Blair is equipping new monument works at Toulon, Ill.

J. J. Wayt has bought out the monument business of W. H. Wilson, at Liberty, Mo.

E. B. Thatchner, Marine City, Mich., is building a new shop for his monumental works.

The Concord & Franklin Granite Co., has opened up a new shop at Franklin Falls, N. H.

M. J. Metcalfe, New Haven, Ky., has bought out his partner's interest in the monumental business.

There is a new firm in the monument business at Los Angeles, Cal., known as Murray & McGuire.

There is a new monument concern at High Point, N. C., known as the Barbee Marble Works.

Lampson & Anderson, Okemah, I. T., are figuring on opening up a marble shop at Prague, I. T.

F. H. Hyatt, of the South Carolina Marble Works, Columbia, S. C., has installed pneumatic tools.

A. B. Ousler, Latrobe, Pa., has been erecting some nice Barre granite monuments the past month.

J. B. C. McFarland, Des Moines, Ia., has been turning out some excellent work in Missouri red granite.

W. S. Eby, of the firm of Eby & Hauck, Piqua, Ohio, was visiting the granite district of the East last month.

The J. S. Clark Co., Inc., Louisville, Ky., has some contracts in hand for important granite work in this city.

The monumental stock of D. L. Morgan, Oak Hill, Ohio, has been purchased by Callahan Bros., of Gallipolis, Ohio.

The Fox-Becker Granite Co., Middletown, Conn., erected the past month a large granite monument at Newtown, Conn.

John Clark has become sole proprietor of the monumental firm of Clark & Bagg, 86 Howard Street, Pittsfield, Mass.

Mr. W. A. Lindsay has put in a new granite plant at Sharpsburg, Pa., near Pittsburgh, and will employ about twenty men.

The La Crosse (Wis.) Monumental Works has been finishing up some nice red Wisconsin granite monument work the past month.

The Stewart Granite Co., one of the pioneer concerns at Mannington, W. Va., is figuring on equipping its plant with pneumatic tools.

The Greenfield (Mass.) Granite and Marble Co. has contracts in hand for some granite work involving quite a lot of elaborate carving.

The Barnhart Granite Co., Chillicothe, Ohio, erected the past month one of the handsomest monuments ever erected in the local cemetery.

The Mound Monument Works, Racine, Wis., has secured a contract to furnish marble and tile materials at the Public Library building at that place.

The Modern Marble and Granite Co., Mt. Sterling, Ill., has been enjoying an excellent business this year, and still has some fine granite work on hand.

The Owatonna (Minn.) Marble and Granite Works, of which C. H. DeLong is proprietor, is said to have turned out the finest monumental work to be seen in the local cemetery.

Leroy, N. Y., has voted funds for the erection of a monument.

Canastota, N. Y., has voted 1,000.00 for a soldiers' monument.

Brockport, N. Y., has voted to erect a soldiers' and sailors' monument.

A movement is on foot to erect a monument at Raleigh, S. C., to Dr. C. H. Wiley.

E. A. Simpson recently purchased the monumental business of J. C. Hare, Hartford, Mich.

Windsor, Ont., will build a memorial fountain in honor of the soldiers of that place that fell in the African war.

General Shields Post, G. A. R., Madison, S. D., has taken steps looking to the erection of a soldiers' monument at that place.

The Charles Wegge Marble and Tile Co., Columbus, Ohio, has secured a contract to make a monument in memory of Captain Daniel S. Lewis.

Turner Ashby Camp Confederate Veterans, Winchester, Va., has started a movement to raise \$25,000.00 to erect a monument to the women of the South.

Charles W. Coble, proprietor of the Keystone Marble Works, Elizabethtown, Pa., placed quite a lot of monumental work in the cemetery at Campbelltown the past month.

Walter St. Clair, who recently bought the marble shop of Dooley & Son, at Lebanon, Ind., seems to be progressing nicely with the business and is well spoken of by the local papers.

The West Bend (Wis.) Granite and Marble Works has taken on a side line and is now handling the Excelsior patent chimney top in connection with their marble and granite business.

H. C. Frinfrock, Attica, Ind., recently placed in the Hillside cemetery at Williamsport, Ind., one of the neatest monuments that has been placed in that cemetery, according to a local paper.

The Fort Smith Marble Co. has been organized to enter the monumental business at Fort Smith, Ark. Among those interested in the concern are: C. A. Mayberry, G. L. Vicet, H. C. Edwards and J. T. Chase.

O. M. Burrus, of Burlington, Ill., has erected an imposing monument at Oquawka, Ill. The monument is said to be of Scotch granite, the main shaft weighing seven tons, and the entire monument 43,000 pounds.

E. M. Gammon, W. H. Grinnell and J. A. Howe, of Beloit, Wis., have been appointed a committee to look after the raising of funds to erect a monument costing about \$2,000.00 to the Grand Army Women's Relief Corps.

Mr. William Fitzgerald has retired from the marble and undertaking firm of Driggs & Fitzgerald, Marion, Ind., Mr. J. L. Driggs having purchased Mr. Fitzgerald's interest and taken his son into partnership with him.

John Lennon, a monument dealer of Joliet, Ill., has nine sons which have made a record as a family baseball team. Mr. Lennon is a pioneer in the monumental business and is the father of nine other children besides these nine sons.

F. L. Sherwin & Co., New Haven, Conn., recently resorted to an exhibit at the Danbury Agricultural Society of monuments, and it seems to have been a good move, for they not only sold the monuments exhibited but secured a number of orders for others.

Fred Stambach, Osborne, Kan., has been receiving and setting up a number of Georgia marble monuments the past month. He has but recently opened up at that place, but has had lots of experience in the business, and has a promising outlook before him.

A new concern in the stone business at Albany, Ga., is the Southern Stone Co., which has the following officers: E. F. Sampson, president; S. B. Giddens, secretary, and J. A. Nall, manager. They are said to have a nice office and cutting shed and start in with a number of orders.

Mr. Chas. Shimmin, of the Shimmin Monument Works, La Crosse, Wis., while erecting a monument at Pray, Wis., one day recently, was caught under a falling block and sustained a broken ankle. Mr. Shimmin seems to have had quite an exciting time before reaching medical aid, as it involved a ride over two miles of corduroy road and a two-hour wait to catch the train into Green Bay.

Messrs. Butler & Scott, of the Machias (Me.) Granite Co., went for an outing in the woods last month and report a good bag of game, including four deer.

The P. N. Peterson Granite Co., St. Paul, Minn., shipped two carloads of monuments to Butte, Mont., during one week the past month, and also one carload to Helena, Mont., one to Spokane and another to Tacoma, Wash. It is said that the Peterson concern is the first one in St. Paul to reach out after the far West trade in an energetic manner, and they seem to be reaping a good reward from their efforts.

The Pogue Monument Co., Crawfordsville, Ind., has been one of the moving spirits in establishing a community of interest among the retail monument dealers of that section. They have formed a sort of union and have a buyer at Barre, Vt., who places orders for all the monuments desired by those interested in this community of interest. The probabilities are that their plans will be further extended in this way.

The Hughes Granite and Marble Co., Clyde, Ohio, through its local agent, Clyde Bryan, Salem, Ohio, has placed a handsome monument to the memory of Oscar Jones, a local fireman who lost his life last summer. This company has also placed a number of monuments in the Vicksburg National Military Park, Vicksburg, Miss., the past month. The company has contracts at the latter place for monuments amounting to \$57,000.00.

The New York Granite Co., St. James Building, Broadway and Twenty-sixth Streets, New York City, has issued what they call an odd epitaph number of their house Journal. Recently this concern offered a prize of \$20.00 in gold to the one sending in the oddest epitaph, and in response to this they received over 300 samples of epitaphs. These are printed in this special issue of the Journal which makes it an odd literary production, and one which any monument man should be glad to have around for the sake of these unique inscriptions.

Odd Inscriptions.

One of the strangest inscriptions is erected over a monument to Edward Courtney, third earl of Devonshire and the ancestor of the present leader of the unionist party in the House of Lords. The earl died in 1419, and by his orders the following was placed upon his tomb:

"Hoe! Hoe! Who lies here?
The good Earl of Devonshire;
With Maud, my wife, to me full dere,
We lyved togeather fyfty-fye yere.
What we gave we have,
What we spent we had.
What we left we lost."

But the most curious inscription in all London is upon a stone erected in Pudding lane, to indicate the place where originated the great fire of 1666, which destroyed half of London. It begins: "Here by the providence of God
Hell broke loose upon this Protestant city."

They tell of a man whose wife died, and in the depth of his sorrow he engraved upon her tomb: "The light of my life has gone out." Two years later he married again, and when his second wife died he was at a loss to explain the situation, so he inscribed under the other epitaph the words:

"He struck another match."

—The Chicago Record-Herald.

A New Use for Concrete.

The St. Louis Granitoid Curb Stone Co., 1909 La Fayette Avenue, St. Louis, Mo.—In your editorial columns I see you ask for new ideas and new experiences. We think we have found a new field for the use of concrete in the manufacturing of caps for sewer inlets. We have by way of experiment moulded 16 of these caps 4x5 feet, 6 inches thick, with the hole in the center 2 feet in diameter, and taken them from one yard and hauled them more than two miles over our rough granite block streets, and set them in place with very little breakage, and that was caused by not giving them time to sufficiently harden. Our city officials are well pleased with the results.

The Concrete Stone Co. has been organized at Ida Grove, Iowa, to manufacture concrete blocks by the H. S. Palmer system. The company is erecting a new building 50x100 feet of their own product which will be equipped with concrete mixers, Palmer machines and a gasoline engine for manufacturing concrete blocks.

Quarries.

The National Quarry Owners' Association.

D. McL. MCKAY, Chicago, Ill.....President
W. H. WALLACE, Bay Port, Mich.....First Vice President
F. A. BROWN, Aberdeen, S. D.....Second Vice President
S. M. HALL, Bucyrus, Ohio.....Third Vice President
E. H. DEFEBAUGH, Louisville, Ky.....Secretary-Treasurer

Official Organ, ROCK PRODUCTS.

Association Meeting.

The National Quarry Owners' Association will meet at Chicago in February, the date to be selected soon.

The necessity for a good, strong organization seems more apparent to-day than ever before. One of the big operators in Ohio, in speaking of the matter, said: "Three years ago when I first started in the stone business, the first thing I did was to go to the neighboring quarries and introduce myself and try to create a friendly feeling. In the past it had been their custom to fight each other, both the laborer and the consumer getting the advantage. However, I am glad to say the situation has materially improved, and if we can make the National Quarry Owners' Association a strong one, the conditions will be materially bettered."

"We sincerely hope we can prevail upon our neighbors to become members, as we appreciate the value of live members and each should do as much as possible to help the organization. There should be some action taken on the labor situation. We will be pleased to be kept informed on the various movements on foot, and suggestions will be welcome. We realize that good can come from the association if we all get together and work."

"We have found in our past experience that where there is unity, there is strength. We are greatly interested in the labor situation."

Another quarry owner, in speaking of the prospects of the work of the organization said: "I think it would be a good idea to accept, say two memberships for an association of twenty-five or less, in order that we may become, as a whole, a powerful organization, for as it is we are severally as associations but weaklings in the commerce of this country. I believe the business for consideration at the next meeting is, first, to take action to strengthen and foster the National Quarry Owners' Association, either by amalgamating with other similar associations who are interested in the quarrying industry, or by working for a much larger membership, not only with the producers of Bedford stone, but also with those who cut and dress the product for the market."

"The second consideration should be to discuss and exchange views on the best means of protecting the stone industry against the encroachments of terra cotta, artificial stone and similar materials."

"Third, to exchange views on the ways and means of quarrying, and a discussion concerning the relative merits of labor saving improvements in the stone business, and the labor situation."

"In conclusion, I feel that co-operation and individual effort would very soon place the National Quarry Owners' Association in the front rank of the powers that are felt in the more important industries from the Atlantic to the Pacific."

It is up to you, Mr. Quarry Owner, to take an interest and help in building up this organization.

About 350 Cars Red Granite.

The Aberdeen Granite Co., Aberdeen, S. D.—The past season has been our first one in operation and we have turned out about 350 cars of Ortonville red granite for monumental and building purposes.

A Banner Western Quarry.

The Montana Sandstone Co., Butte, Mont.—We have filled out your blank in regard to our product the past year, and in regard to special jobs of work we have had on hand the past year, will say we have had federal buildings, churches, school, business and private buildings in various parts of Montana, and in addition have furnished copings, sills, curbing and grindstones to all parts of Montana and lots of riprap to the Missouri Pacific Railway Co. We have at the present time a large contract to be delivered in the spring for the Billings, Mont., courthouse. We have the most complete and thoroughly equipped quarry West of the Mississippi river.

Running Day and Night.

Milo M. Belding, Gouverneur, N. Y.—We work marble for Monumental and building purposes, and the amount worked the past year was about 60,000 cubic feet as compared to 50,000 cubic feet in 1902. We are running day and night, and expect to increase our business through the coming year.

The Petaluma (Cal.) and Santa Rosa Electric Railway Co. has purchased quarry property.

The Hawke Stone Co., Springfield, Pa., has closed the Stevens quarry but is still operating its other quarry.

G. S. Frambes, Columbus, Ohio, has leased the stone quarries of the Allegheny Quarry Co., East of Lancaster.

E. S. Ellsworth and W. S. Busbee are preparing to open a quarry and equipping a crushing plant at Iowa Falls, Iowa.

The Brainer, Shaler & Hall Quarry Co., Portland, Me., has closed down its quarry until after the first of the year.

Mr. Lem McManness, Findlay, Ohio, has secured a contract for ten carloads of foundation stone to go to Deshler, Ohio.

It is said that Postmaster Ledgerwood, of Leon, Iowa, and others have purchased land on which they will develop a quarry.

The White Granite Co. has increased its force of quarrymen and cutters at Bluehill, Me., as it has quite a large contract in hand.

Reports from Rock Island, Ill., state that Arthur Burrell, manager of the Colona stone quarries at Colona Station, Ill., is getting out stone for a large apartment building in Chicago, Ill.

F. S. Paulin, stone contractor of Rock Island Railway, got out a large block of stone the past month which measured 33 feet in thickness, 37 feet in width and 103 feet in length.

The Mt. Baker Marble Co. has been incorporated at Whatcom, Wash., to develop marble quarries near that place. The incorporators are: Dr. J. C. Graffin, H. A. Strickfaden, D. P. Castor and B. P. Eno.

The Jonesport Land and Granite Co. has been organized at Portland, Me., with a capital stock of \$25,000.00, to engage in quarrying, etc. The incorporators are: James F. Bliss, president; Charles G. Chick, treasurer.

The Philadelphia and Reading Railway is putting in a side track one and a half miles long to the quarries of the Keystone Marble Co., which is owned by John H. Black and George B. Ulrich, of Anneville, Pa.

What is known as the Standard Granite Quarry, at Mount Desert, Me., has been leased by Arthur MacMillan, of New York City, who has a contract for a lot of Government work. Mr. MacMillan will improve the property and put a large force to work in the spring.

James Patton, Pocatello, Idaho, has bought a half interest in the Goodheart quarries at Idaho Falls, and also an interest in the red stone quarry at American Falls, which gives him close connection for furnishing stone. Mr. Patton is a dealer in cement and other building materials.

George Wright, Daniel McGaffey and others have organized a company with a capital stock of \$50,000.00 to develop granite property along the Colorado Springs and Cripple Creek District railroad in the vicinity of St. Peter's Dome. Mr. Wright is freight agent of the Short Line at Colorado Springs, Colo.

Stone.

Seeking for Improvement in the Stone Mill.

Now that improvement is so much the order of the day in nearly all lines of rock products, what is the matter of stirring up things a little in the stone mill. We have all sorts of new things in the manufacture of lime and cement, and we have pneumatic appliances in the monument shops, but we seem to be married to the good old methods of sawing and rubbing stone. Why not let us swap ideas and opinions awhile, and see if we can't start a line of improvement that will help us all out? I don't know so much myself, but I can think things—and ask questions.

Seeking Improvement.

One of the first questions I feel like asking is why we can't improve on the common methods of gang sawing. You may go into stone mill after stone mill, and it is the same thing over, with only slight variations, that good old sure but slow method of worrying a gang of saws through a block of stone, with strong accent on the "slow." Now, when we turn from this stone sawing of ours and see what has been done in the way of improvements in sawing timber, it's enough to make us think that we, as well as the saws, are slow, for the saw that works on wood has been developed through all sorts of stages from the old slow "sash" that seems to belong to the same family as the stone saw, to all sorts of high-feed machines. And, if we study the wood sawmill closely in its latest developments, we may get some pointers that will help out a little in stone work. For example, there is to-day a turning from the high cutting speed of single saws where great output is the object, to slower cutting gangs, which, though they partake somewhat of the nature of the old "sash," are great things for capacity. The point to be gained from this is that we should perhaps not give too much attention to efforts for greater speed of the individual saw at its work, but work with the end in view of making every inch of movement in a gang cut. Then, in this same spirit, we might follow up every detail in the process of converting a rough block into sawed stone, and seek to lighten the work and lessen the time required at every step.

How Do You Do This?

I saw a man making a lot of small stock one time, so small that when finished the blocks looked from a distance as if they might be brick, and that man was wishing for improvements to aid him in the work. The first stage in the sawing was simply that of reducing an ordinary block to thin slabs, after which these slabs were piled on top of each other and sawed again, which was simple enough, too, but when it came to the next step, that of cross-sawing the strips produced in this way, there were worries. There is no need to tell you what the worries were, for it is plain that it was lack of facilities for holding these small pieces while the final sawing was being done. Of course we don't all saw this small stuff, but what I want to suggest here is the idea that there may be room for improvements in holding stone while it is being sawed. How many of you have given thought to this point? If any of you have developed some ideas along this line, I would like to hear of it, and if you haven't, let us all do a little figuring and see what we can think of.

About Straight-Line Sawing.

I don't know whether this will be anything of a pointer to any of you or not, and I may be clear off the track, but it strikes me that it is time to get away from that lifting and chugging motion which is part of the regular working of an ordinary gang saw. There have been some efforts made in this line I am pretty sure; in fact, there is a patent or two covering this point, in which the saws are made to move straight back and forth without any of that lifting up at each end of the stroke. The main question involved in changing to this manner of sawing, is that of getting sand and water into the work. This is taken care of on the proposition for straight line sawing, by use of saws

with a series of round holes in the blade, so arranged that a sufficient number of holes will be present on the cutting edge of the saw all during the process of wearing the saws out to let in the sand and water. Another plan is to use, instead of a straight smooth saw blade, one that is crimped or corrugated crosswise, so that instead of presenting a straight edge to the work it presents one that zigzags alternately from side to side, and of course therein furnishes room for sand and water to reach the cutting edge. I am not posted just how far experiments have been tried with these saws, but there certainly must be some one in the trade that can tell us about them; tell us their good qualities and point out their weak spots, and give us an idea of what they promise to do for the trade in the way of progress.

There are several other points in connection with operating a gang that might have attention to advantage, and some that I have been informed are receiving attention, but I think this is enough from me on the saw question at present, and I will wait to see what some one else will have to say.

That Air-Lift Sand Feed.

Next to sawing comes the rubbing beds, things that I don't know as much about as I know about sawing, but maybe some of the rest of you do, and can tell us where and how there is a chance to make improvements in connection with them and their work.

There is the matter of sand feed, both for sawing and rubbing, however, that has shown some development lately, but the trade does not seem to have taken advantage of it to any great extent. It has been demonstrated that sand and water can be handled and fed to the saws and rubbing beds without the use of anything in the way of pumps or valves when you have an air compressor in your plant, and it strikes me that it would even pay a man to add an air compressor for this work alone, for you don't have pumps and valves, and for that matter any working parts in connection with the handling of sand, to be all the time wearing out. All you need is a well into which you drain the sand and water that is used, and pump it out again with an air lift, distributing it through pipes to different saws and rubbing beds, from whence to find its way back into the well by gravity. I only know of two or three of these air lifts being in use for this purpose, but they do the work so well that it is a wonder to me that everybody has not taken it up before now, especially those who have air compressors in their works.

C. MILLER.

A Prominent Pneumatic Installation.

Much interest is attached to the new compressed air power plant of the Cleveland Stone Co., at its North Amherst, Ohio, quarry, one of the largest in the world. The accompanying illustration shows the compressor in the course of construction. The steam cylinders for the new Corliss compressor have been connected, and the picture shows the air cylinders being placed in position. These compressors are so large that it has been found advisable to install them on the foundations before the walls are carried up. There are two of these machines of the Ingersoll-Sergeant Corliss

condensing type, with 48-inch stroke, and having a combined capacity of 9,215 cubic feet per minute.

This plant, which is being installed complete by the Ingersoll-Sergeant Drill Co., is destined to operate all the machinery in the quarry and promises to make such economies in production as to begin a new era in quarrying methods. As the first large plant of this kind, its success or failure will be watched with the keenest interest by quarrymen, and if the expectations of the owners as to economical results are fulfilled it will be the means of introducing a number of similar power plants in the large quarries of the country.

The Newport Stone Co., Newport, Mich., has been incorporated with a capital stock of \$10,000.00.

The Brockton Trap Rock Co., Kittery, Me., has reduced its capital stock from \$175,000.00 to \$100,000.00.

The Southern Granite Co. lost its barn and four or five head of horses at Lithonia, Ga., by fire last month.

The Acme Bedford Stone Co., of Clear Creek, Ind., has been incorporated with a capital stock of \$20,000.00.

Floyd P. Lyman, foreman of the Rutland (Vt.) Marble Co., has been transferred to the San Francisco, Cal., branch of that concern.

Mr. E. S. Ellsworth, Iowa Falls, Iowa, is erecting a concrete dam across the Iowa river at that place, and will install a crushing plant.

The Texas and New York Granite Co., which operates at Granite Mountain, near Marble Falls, Tex., is preparing to put Texas granite into New York City.

We have received from Mr. David Ross, secretary of the Bureau of Labor statistics, the 21st annual coal report of Illinois, which is for the year ending October 1, 1902.

The Duluth Crushed Stone Works, which is comparatively a new concern at West Duluth, Minn., seems to be enjoying prosperous times, and is increasing its force right along.

The Excelsior Granite Co. has been incorporated at Denver, Col., with a capital stock of \$50,000.00. The incorporators are: George Wright, George M. Dynes, Elijah B. Hosman and Daniel McGaffrey.

The Cleveland Cut Stone Co. has been incorporated at Cleveland, Ohio, with a capital stock of \$25,000.00. The incorporators are: E. A. Foote, R. P. Sawyer, J. E. Morley, W. F. Carr and C. H. Gale.

The North Alabama Stone Co. has been incorporated at Birmingham, Ala., with a capital stock of \$17,000.00. The incorporators are: W. C. Shackson, Joseph V. Allen, Joseph Johnson and others.

The T. G. Schrader Sons' Marble and Granite Co. has been incorporated at St. Louis, Mo. The capital stock, full paid, is \$20,000.00, and the shareholders are: Wm. F. Albert, Joseph W., T. G. and Mary Schrader, 50 each.

The Eastman Marble Co., West Rutland, Vt., has installed a new boiler and hoisting rig.

The Cleveland Cut Stone Contracting Co. has been incorporated at Cleveland, Ohio, with a capital stock of \$25,000.00. The incorporators are: E. A. Foote, Raymond P. Sawyer, J. E. Morley, W. F. Carr and C. H. Gale.

The American Granite and Sandstone Co., 208 Tabor Opera House block, Denver, Colo., has a contract to furnish \$500,000.00 worth of granite to erect a building in St. Louis, Mo., for the Campbell Illustrated Journal Co.

The Pink Granite Co. has been incorporated at Salisbury, N. C., with a capital stock of \$300,000.00. Louis H. Jarsen, of Salisbury, is in charge of the affairs of the company. The purpose is to develop local granite properties.

E. B. Ellis, of Northfield, Vt., has been awarded a contract for furnishing, cutting and setting the granite for the union station, Washington, D. C. This is said to be one of the largest individual contracts ever awarded for granite.

J. W. Combs, superintendent of the Standard Group Marble Co., with headquarters at Spokane, Wash., and quarries at Bossburg, Wash., claims to have discovered near their marble quarries a deposit of hone stone which promises to be good property.

David Baker, Sidney, N. S., general manager of the Dominion Iron and Steel Co., Ltd., will receive proposals until December 15, for quarrying, crushing and delivering f. o. b. vessel from 200,000 to 400,000 tons limestone per year to be taken from quarries of company at Marble Mountain, Cape Breton.

The Jonesport Land and Granite Co. has been incorporated at Portland, Me., with a capital stock of \$25,000.00. The incorporators are: James F. Bliss, president; Charles G. Chick, treasurer; Wellington O. Sawyer, Everett, Mass.; Daniel S. Emery, Newton, Mass.; and George F. Mansfield, Jonesport, Me.

The Granite Polishing and Finishing Co., of Granite, Okla., consisting of Atchison, Kan., men, has consolidated with the Abiline Polishing and Quarrying Co., of Granite, Okla., and will put in larger machinery and a new 100 h. p. engine and boiler. They will get out and finish all kinds of red granite for the building and monumental trade.

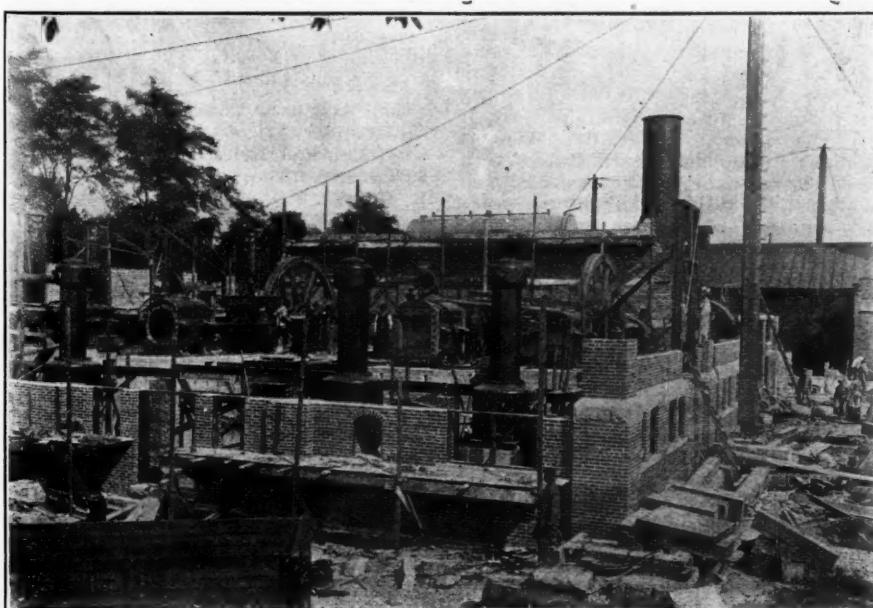
The Des Moines Building and Crushed Stone Co. has been incorporated at Des Moines, Iowa, with a capital stock of \$10,000.00. The officers of the company are: John Monarch, president; F. V. Yohe, vice president; Charles Briar, secretary-treasurer, and Major James M. Brenton, general manager. The company has purchased and will operate a crusher at East Peru.

Professor C. N. Gould, of Oklahoma University, who has charge of the Oklahoma exhibit at the World's Fair, has submitted a report to the commissioners of that State in which it appears the exhibit will contain 200 specimens of building stone, 50 of artificial stone and 200 specimens of trick. There will also probably be 100 specimens of gypsum and gypsum products.

C. E. Mitchell, manager of the United States Marble Co., Spokane, Wash., has been visiting Harrisburg, Pa., the past month. A number of Harrisburg people are interested in the enterprise and Mr. Mitchell brought along with him a picture of the biggest block of green marble ever quarried, and told them about the progress being made to put their brilliant green marble on the market.

The Barre (Vt.) Granite and Construction Co. has been incorporated with a capital stock of \$200,000.00. The object of the company is to purchase and develop quarry lands in Barre city and town and to sell rough stock for the quarries acquired, etc. The incorporators are H. W. Whitcomb, C. A. Bond, R. A. Hoar, B. H. Wells, F. G. Howland, George Howland, Edgar Jackson, of New York City, F. O. Woodruff, of Boston, and H. K. Bush, of Barre.

The Tennessee Variegated Marble Co., which is developing marble property in the Knoxville region, contemplates building an electric railway for getting its stone into the market. Mr. W. B. Gamble, of Columbus, Ohio, is interested in this concern, which is capitalized at \$2,500,000.00 and some extensive developments are expected. This company is equipping a plant at Friendsville, Tenn., where they have already unloaded a 150 h. p. boiler, engine and other machinery to operate a crush-



POWER PLANT OF THE CLEVELAND STONE CO., NORTH AMHERST, OHIO.

Slate.

The State of the Slate Industry.

It is probable that the busiest men in the industrial world to-day are the slate people. If you go into the slate belts of the Pennsylvania, Vermont, New York and Maine you will find the slate producers utilizing every inch of quarry space which has been opened up to such a point as to make the slate available. It will probably therefore not be amiss to describe some of the methods of operation in the production of this valuable material. A very large proportion of the world's slate comes from the section mentioned above.

Begin at the beginning. When you think you have located a good vein of slate and think you have twice as much money available as you can by any possible combination of circumstances use up getting the quarry open, you go to work and remove anywhere from five to twenty-five feet of earth, probably from a space thirty to fifty feet wide by fifty to sixty feet long. Next you will have to remove quite a body of slate, which is of such quality as to be of little value. The amount of this is also a very variable quantity, and in some sections it will reach 15 or 20 feet. Usually by the time this is done and you are beginning to get at some good slate, your money is all gone and you still have no machinery to work your slate satisfactorily. Then one of two things happens. Your quarry lies idle and deteriorates for several years until some one comes along and buys it up for about half what it costs you, or else you get a hustle on yourself, get the necessary money and in the course of a year or so, if you know the slate business thoroughly, you will be making money. From the foregoing it is evident that the production of slate can not increase very rapidly, and in consequence can not follow rapid increase in demand, since, as a rule, several years are spent in getting the quarry in good working shape. The deposits of good slate vary in width from ten to sixty feet, roughly speaking, and it is customary to open up a good-sized hole and work downward on that, where the slate lies at an angle, as low down as it is considered economical. As a rule in the Pennsylvania belt, at least the quality of the slate tends to improve with depth. When you go down to a reasonable depth, say a hundred or a hundred and fifty feet, they frequently use underground mining, carrying large entries, the original hole serving as a shaft. I do not know of any quarries which are over three hundred feet deep. Even where the slate is found on a hill side there is little or no hillside quarrying done. Owing to the large amount of water which is almost always present in slate quarries, if it were possible to use hill side quarrying with natural drainage, even though the first cost were very heavy, it would probably be economy in the end to do so.

For loosening the rock, hand drills and blasting are used in the main. When large pieces are dislodged they are split up into sizes which can be handled by hand labor. While the drilling goes very rapidly by hand it would probably pay the larger operators to use compressed air and large plug drills. The method of getting the material to the surface, differs from most mining, or quarry operations, in that it is almost invariably done by a cable and bouldins. Larger chunks are taken up, piece by piece, by throwing a chain around them and taken in to the works on the tables, one or more of which is always suspended over the slate quarry. The refuse material is handled in the same way except that it is much smaller and is loaded on to a scoop, which is carried out by a cable so that it may be dumped entirely out of the way of yard operations. Cables and bouldins are quite a factor in the cost of the equipment of a slate property. Where roofing slate alone is manufactured the sheets are not very large, since the slate must not be allowed to dry but must be worked almost as fast as produced. When the rough irregular blocks come up they are trimmed up either by hand or by circular saws, the latter has come to be the more common meth-

od. These saws are odd looking affairs, being nothing more than low, flat tables, very heavy and of cast iron.

If the slate proves to be too thick, it is a very small trick to split it. The saws seldom exceed thirty-six inches in diameter, so that probably fourteen or fifteen inches of slate is about the limit, and it is probable that there is not much economy in sawing them that thick even. The saw, of course, is geared to run very slowly and is supplied with a stream of water pouring on it all the time that it is in motion, otherwise it would get hot enough to draw the temper. When the slate has been dressed to the four desired dimensions at right angles to the bed of the slate it is taken in hand by the splitters, and it is surprising to see how even very large sheets, such as are used for blackboards, can be split off no thicker than a quarter of an inch perhaps. It requires skill, of course, to do this. The tools used for splitting the slate resemble a broad bladed putty knife with an iron handle. This is followed by a larger and heavier chisel for the larger and heavier pieces. No great force is needed to drive these in at the proper place. Small roofing slate is split up very rapidly. Dimension slate and school slate being in much larger pieces, require more care and more time. The roofing slate is practically finished when it is split, except for the punching of the holes and the trimming of the corners in some cases. This is for the most part done by hand and a great deal of it is shipped untrimmed

The Problem of Utilizing Slate Waste.

In our rambles through the slate belts of Vermont, New York and Pennsylvania, we were frequently met with the inquiry whether there was not some way of utilizing slate dust in a commercial way. Observing the large amount of waste slate material in the various quarries and cutting sheds, we could realize that it would mean to the slate manufacturer if he had some means of disposing of this material at a profit. In fact, it would mean money to him if he only got enough out of it to pay for the handling of it. As it is now, he has to go to considerable expense to get this material away from the shop and from his quarry, a sufficient distance that it shall not interfere with daily operations. The following may be of interest to our slate people:

J. C. Quinn, of Liverpool, Eng., has taken out a patent for the manufacture of an artificial stone, which consists of about 800 parts of slate dust mixed to a stiff paste with water. 180 parts of quick lime are mixed in a pug mill with enough water to form a magma of creamy consistency. And when the lime is completely hydrated, it is thoroughly mixed with the slate dust and 135 parts of meta-silicic acid. The meta-silicic acid is prepared by pouring a solution of sodium silicate into an excess of hydro-chloric (muriatic) acid. The slabs or tiles are made from this mixture by subjecting them to a pressure of several tons per square inch, and then allowed to dry and harden for five or six weeks. The process of hardening may be accelerated by subjecting the blocks to steam, or by occasional moistening with alkali silicates. It is probable that very good blocks can be made in this way, but they are apt to be rather expensive on account of the meta-silicic acid which is used in the process. If the meta-silicic acid were obtainable as a by-product from some other industry, the slate people might be able to use it. It is also probable that the amount of this meta-silicic acid might be materially decreased, especially for interior work. There is a question in our minds as to how such a material would resist the disrupting action of severe weather, since most slates carry considerable quantities of clay, and since an investigation of the lime-sand brick which contains considerable quantities of clay, showed very material weakness under the action of frost, we would be inclined to look for trouble on this score. It is probable that the future will develop some means of utilizing these immense slate dumps, but so far as we know at the present time, absolutely no profitable use has been developed.

The Mohawk Valley Slate Co. and the Mohawk Slate Co., of Amsterdam, N. Y., have been merged.

It is reported that a new slate quarry is to be opened up near West Bangor, Pa., with W. Jerry Jones as manager.

George F. Coffin, Easton, Pa., has been appointed receiver of the New Gem Slate Co., which has a quarry and machinery at Danielsville, Pa.

The Superior Slate Manufacturing Co. has been incorporated at Martinsburg, W. Va., with a capital stock of \$150,000.00. Orran W. Kennedy, of Uniontown, Pa., is president.

The New York Standard Slate Works has been incorporated at Jersey City, N. J., with a capital stock of \$300,000.00. The incorporators are: Alfred Nelson, Allan C. Nelson and John R. Smith.

The Arkansas Red Slate Co. has been incorporated under Arizona laws, with offices at Kansas City, Mo., and Mena, Ark., with a capital stock of \$500,000.00. The president of the company is J. R. Crowe.

The Consolidated Slate and Manufacturing Co. has been incorporated to engage in the slate business in Northwestern Arkansas. It is incorporated under Arizona laws with O. M. Waterbury, Mena, Ark., as the Arkansas agent.

The long drawn out strike in the Pen Rehyn slate quarries of Wales has at last come to a close, the labor leaders finally abandoning the struggle and accepting the terms offered by the employers. The men went out on the strike three years ago, and not only made a stubborn fight, but enlisted the sympathy and assistance of many of the people both of Wales and England, and it was even reported at one time that the King of England tried to intercede with Lord Pen Rehyn to get some concessions by which the trouble might be adjusted, but Lord Pen Rehyn had a head of his own, and one that no kind of persuasion could turn, and now after three years' fight he has evidently won out.



A View in the Quarry of the Crown Slate Co., Penn Argyl, Pa.

and unpunched, and the work is finished by the roofers. Dimension slate for interior work is sawed to the desired size and split to a thickness slightly greater than the desired in the end. It is then laid on rubbing beds, supplied with water and sand and is ground to a true surface, being held upon the rubbing bed with just sufficient force by weights which can be moved around, to keep it down and still not spring it materially. When it has been brought to the desired thickness, with true surfaces, it is taken off and the corners usually dressed up with a file, especially if the specifications call for rounded corners or for some special designs of moulding.

The same general method of handling is practiced by those who are manufacturing school slate.

The slate industry has come to be a very large one and is still increasing and is likely to increase for a number of years, while a good profit can be made by those who are thoroughly conversant with methods of manufacture and production, those who are not thoroughly posted usually make a flat failure. In figuring cost of operations on slate you must always bear in mind the enormous amount of money it is necessary to tie up in development before any profit can be looked for, except in such cases where the quarry has been brought up to the point where it had begun to produce slate and had to be abandoned and was later sold for much less than the property is worth. There are probably still a few such properties available in the older slate sections.

The Alston Stone Sawing Machine.

A short time ago we made mention of an invention of a new attachment for stone sawing gangs by Mr. Oscar W. Alston, and that a company had been formed known as the Alston Stone Machine Co., to put this and other Alston stone working machinery on the market. Recurring to the subject of this stone gang, we are able to illustrate herewith this appliance in its latest form. Going back into the history of the development of stone sawing machines as set down by Mr. Alston, he says:

"In 1859 A. T. Merriman secured a letter patent on what has since become known as the Merriman gang, in which the frame, or sash as it is generally called, is suspended by swinging pendulums from slide heads, which are raised or lowered by vertical screws. This purported to be an improvement on the ancient chain, or rope gang, which, however, had a decided advantage over the screw feed, as the upper wrists or pivots on which the pendulums turned, being less rigid, allowing the saws to drag, as it were, thus prolonging the time and length of stroke under which the saws were in contact with the stone. It is a noteworthy fact that an average stroke 18 inches in length produced by 50-inch pendulums in a well adjusted screw feed gang, were it not for the tension or give of the different bearings, would give an actual sawing contact of but two inches, or nearly so. In ordinary sawing, however, the sash is fed a little lower each stroke than the limits are of the arc described by the lower end of the pendulum; this made possible, by the slight yielding of the intermittent

changing the gangs of this company, both at Cambridge and Providence. He says that he is placing a number of these gangs at various points in the country and expects things to move along at a lively gait, both in the new machines they are building, and also the attachment to change the old style gangs into better machinery.

FREE RECLINING CHAIR CARS.**"The Henderson Route"—Always First.**

LOUISVILLE, Ky., October 29, 1903.—The traveling public will be pleased to learn of the latest innovation in the way of comfort in travel for its patrons which is now being offered by that most popular railroad, The "Henderson Route," which road has been rightly termed the "Kentuckian's Official Route, to the West and Southwest."

It has been announced from the general offices of the Louisville, Henderson and St. Louis Railway that they now have in service on their night trains between Louisville and St. Louis, Free Reclining Chair Cars, which have just been received from the shops and are a revelation in the car builders' art.

The cars are strictly up-to-date, first class "palaces of travel" on wheels, and this is only one of the many surprises which are promised the public for World's Fair travel by the Henderson Route.

Among other advantages offered in these highly finished cars, a few of the most important points only are mentioned:

They are solidly vestibuled and are furnished with sixty-four reclining chairs, which are upholstered in beautiful green plush, in addition to smoking and toilet rooms, the smoking rooms being finished throughout in leather. They are also fitted up with triple trucks, which feature will do away with the jerk, jar and strain incident to travel in the ordinary railway coach, and insures a smooth, comfortable ride. This should prove more than a popular feature in train service to the traveling public, and we can only suggest that in traveling you "get the 'Henderson Route' habit."

INFORMATION BUREAU.

714.—I would like the addresses of manufacturers of machines for the manufacture of building stone out of cement and sand.

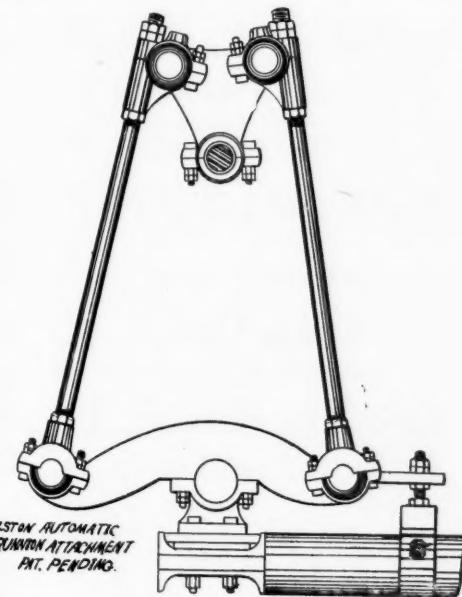
715.—We are in the market for an up-to-date lime kiln where slack coal is used for fuel.

716.—We would like to be put in communication with manufacturers of continuous kilns, about 75 barrels per day capacity.

717.—We would like the name of some large producer of charcoal.

718.—We are in the market for paper roofing and material for same, to be delivered about January 1, 1904.

719.—I need a couple of competent soft stone tool dressers.



bearings, practically lengthens the stroke to 3 to $\frac{1}{2}$ inches, the remainder of the stroke being wasted."

There have been within the last few years a number of attempts more or less successful, at inventing devices to secure a horizontal, rectilinear stroke on gang saws, and prominent among these is this invention of Mr. Alston's. With his device, he claims to combine the easy running qualities of the swinging pendulums without its disadvantages lifting and pounding action with the straight horizontal, and consequently rapid cutting qualities of the sliding action, but without its excessive friction and expensive cost of installation and maintenance, which should be a welcome adjunct to the plant of the progressive millowner.

Mr. Alston has the advantage of having had an extensive experience with stone working machines, and has supplied the knowledge gained of details from his experience in this work. Speaking of this attachment for gangs, he says it can be applied to regulation gangs in a few hours time, so that very little time is lost in making the change.

For these and other straight cut sawing machines an 8-inch by $\frac{1}{4}$ -inch blade is used, same being punched in the cutting edge 4 inches to 6 inches apart to space for abrasive material to work under blades. A special device for sawing thin marble slabs is also made, using the customary blades.

He says the cost of the attachment as applied to the ordinary gang is generally from \$400.00 to \$450.00, and claims it will increase the output of such a gang over 100 per cent. In a recent letter he writes us that his saws are doing fine and that some time ago he installed his first one for the Norcross Co. in the Charles river plant, and is now

YOUNG MAN with \$100,000.00 who is not afraid to work hard, to take half interest in a big quarrying business located in Colorado and Wyoming that nets fine returns; present owner wants to retire from active participation in business. Address G. W., care Rock Products.

WANTED—POSITION.

A SMALL SUM invested in a concisely-worded description of what you want right here will no doubt secure you numerous replies and find that desired position for you quickly.

A PRACTICAL cement and lime manufacturer is open for position after December 1; long years of experience, energetic and pushing; references given. Address B., 511 Chestnut Hill Avenue, Baltimore, Md.

WANTED—MISCELLANEOUS.

CLAYS—High fire-resisting shale rock in the middle East; plastic, white-burning clay in the South. For requirements, address KARL LANGENBECK, Elizabeth, N. J.

CORRESPONDENCE—With parties who desire to engage in the stone business, either by purchase or lease, of our quarries which are fully equipped, centrally located and especially adapted to furnishing machine-broken stone. Address LE GRAND QUARRY CO., Marshalltown, Iowa.

FOR LEASE.

MARBLE WORKS AND QUARRIES in Southern California; property of California Portland Cement Co., rooms 401-403 Trust Bldg., Los Angeles, Cal. Works have been running day and night for two years, furnishing marble for two of the finest office buildings in San Francisco, Cal. The present lessees constructed and own these buildings, costing over \$1,500,000.00. The buildings are nearly completed and a favorable lease will be made for the marble works and quarries with the right parties. The quality of the marble is established and there is no other plant of this kind in Southern California or the Southwest. Any marble manufacturer could supply the entire territory from this factory; correspondence solicited.

FOR SALE—PLANT.

LET US SELL that plant for you. See head of department for rates.

COMPLETE STONE CRUSHING PLANT.—Every thing, from an elbow up to a No. 3 Gates' crusher. Address E. T. BOTKIN, Farmland, Ind.

FOR SALE—MISCELLANEOUS.

EASTMAN KODAKS—Two up-to-date No. 2 Eastman kodaks at reduced prices. Address E. H. D., care Rock Products.

REAL ESTATE—Finest stone and lime proposition in the State; within 25 miles of Indianapolis; 66 acres of finest limestone; has factory, lime kilns, and railroad switch. Price, \$25,000.00; would take part trade. Address STILTZ & MILLER, 151 E. Market St., Indianapolis, Ind.

BUSINESS OPPORTUNITIES.

HAVE you anything to sell that will probably interest a reader in Rock Products? Try a four or five-line advertisement for three issues—it will find a buyer.

RESURRECT the dead capital in that machine you no longer need by inserting the advertisement here. Quick returns at a small cost. Try it.

FOR SALE—MACHINERY.

CRUSHING, GRINDING MACHINERY—Pulverizers, root, rag and herb cutters; also Drying Machinery new or second-hand always on hand at J. R. ALSING CO., 136 Liberty Street, New York.

Wanted and For Sale

One insertion, 25c a line; Two insertions, 50c a line; Three consecutive insertions with no change in the composition, 56c a line. Count eight words to a line; add two lines for a head.

WANTED—HELP.

CHEMIST by a cement company in the South; a thoroughly reliable, experienced chemist. Apply, stating age, salary required, and give references to SOUTH, care Rock Products.

PARTNER—By an owner of a granite quarry, partner to incorporate company, to operate and develop same. Parties with money enough to pursue operations could make a good contract with the owner of this quarry. Address O. C., care Rock Products.

SALES MEN—We want good salesmen all over the South for the Winget building block machine. Address A. D. MACKAY & CO., Chamber of Commerce, Chicago, Ill.

ROCK PRODUCTS.

ROCK CRUSHER—One Royal No. 5 gyratory rock crusher, built by the Diamond Drill and Machine Co., Birdsboro, Pa.; in use three years, with all new duplicate parts; capable of crushing 500 tons per day. Address RICHARDSON & ROSS QUARRY CO., Norristown, Pa.

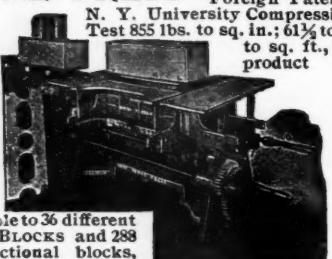
SEVERAL second-hand Pulsometer pumps, boilers, engines and miscellaneous machinery. Address MASLINS, 165 First Street, Jersey City, N. J.

VICTOR STEAM SHOVEL—Yard and one-half dipper; 45 h. p. boiler; shovel has been used but seven months. As we have no use for steam shovel, will sell cheap. Address VICTOR, care Rock Products.

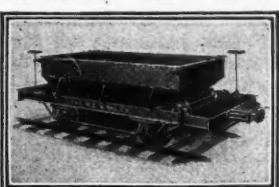
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Bucyrus, 55 ton, 2 yd., first-class order.
Marion A, 1 $\frac{1}{2}$ yd., good order.
Vulcan, 45 ton, 3 sets engines, 1 $\frac{1}{2}$ yd., first-class order, built 1902.

Bucyrus, 2 yd., good order.
Industrial, 65 ton, steam shovel, fine order.
Vulcan Giant D, crowding engines, 1 $\frac{1}{2}$ yd., built 1901, first-class order.

Vulcan, Little Giant, crane-type, 30 ton, 1 $\frac{1}{2}$ yd., almost new.
Vulcan, Little Giant Special, 1 $\frac{1}{2}$ yd., dipper, almost new.
Vulcan, Little Giant, 25 ton, 1 $\frac{1}{2}$ yd., good order.
Vulcan, Baby Giant, 3/4 yd., crowding engines, fine order.

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